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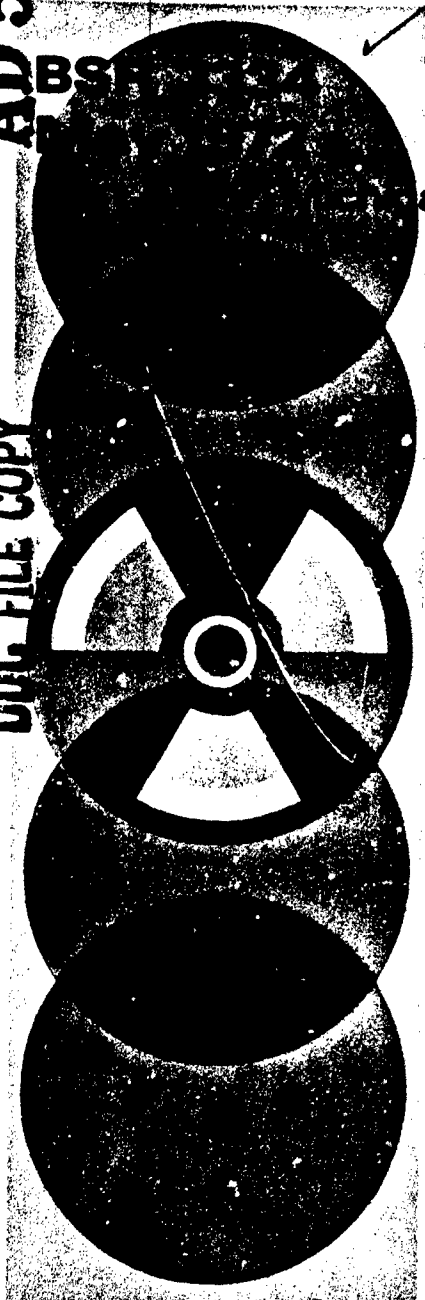
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BSC 63978

Analysis of Vietnamization: A Description of the War, 1967-71 (U)

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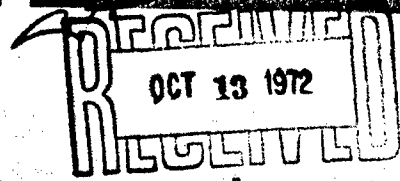
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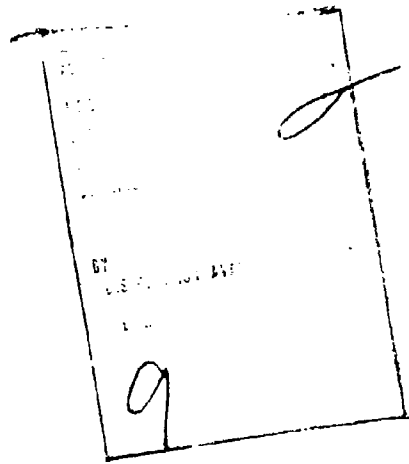
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(6) **ANALYSIS OF VIETNAMIZATION:
A DESCRIPTION OF THE WAR, 1967-71 (U)**

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(10) **William G. Prince
Cristine A. Candela**

Prepared by:
Social Sciences Department
Bendix Aerospace Systems Division
3300 Plymouth Road
Ann Arbor, Michigan 48107

Best Available Copy

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Principal Investigator: W. G. Prince
AC 313-665-7766, ext. 669

Project Analyst: C. A. Candela
D. M. McCormick

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GLOSSARY OF ABBREVIATIONS

ARVN	Army of the Republic of Vietnam
GVN	Government of Vietnam
KIA	Killed in Action
MR	Military Region - There are four in Vietnam.
NVA	North Vietnamese Army
PF	Popular Forces - Territorial troops assigned as village or hamlet security forces.
RF	Regional Forces - Territorial forces recruited and employed within a province
SVN	South Vietnam
US/FW	United States/Free World Forces
VC	Viet Cong
VCI	Viet Cong Infrastructure
VNMC	Vietnamese Marine Corps

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ANALYSIS OF VIETNAMIZATION:
A DESCRIPTION OF THE WAR, 1967-71 (U)

SECTION I

SUMMARY

Problem

(U) In general terms the main theme of Analysis of Vietnamization is the identification and interpretation of the statistical relationships between the following general concepts:

- GVN, U.S., and 3rd Country Military Activities.
- GVN, U.S., and 3rd Country Resources.
- VC and NVA Military Activities.
- VC and NVA Resources.
- GVN Political and Economic Activities.
- VC and NVA Political and Economic Activities.
- Cultural and Economic Factors.
- Other Environmental Factors.
- Popular Attitudes.
- Political Behavior.

Planners and decisionmakers have long recognized that the relationship between the first and last concepts above is weak, probably indirect, and conditioned in varying ways by the eight intervening concepts. The basic definition of counter-insurgency recognizes this complexity of relationships by stating it consists of "those military, paramilitary, political, economic psychological, and civic actions taken by a government to defeat subversive insurgency."¹ The ten concepts listed above represent only the basic framework for organizing the raw materials (data) utilized in developing an empirical description of the Vietnam War. This description is based on the province to province differences and similarities in the profiles of military presence, activity, combat, and direct results which have been found to best represent the first four basic concepts above.

¹(U) Joint Chiefs of Staff, Dictionary of United States Military Terms for Joint Usage, JCS Pub. 1, (GPO, Washington, D.C., 1966), p. 51.

Research

(U) This study is a supplementary analysis to our paper, Analysis of Vietnamization: A Description of the War, 1967-70. Specifically this report more intensively examines the Province Cluster Profiles of the aforementioned paper. U.S. statistics had been deliberately downplayed or eliminated in the above study because of a primary concern with the South Vietnamese aspects of the war. This paper represents an attempt to provide a more complete perspective of the war by inclusion of U.S. data.

(U) The description of the war across the 44 provinces of Vietnam produced in this study consists of a simplification and interpretation of the relatively unstructured and unintelligible description contained in the data for hundreds of variables recorded monthly for each province. The complexity due to the large number of variables was simplified by elimination of redundancy and construction of aggregate indices to obtain 22 key indicators of combat intensity and participation plus opposing military force presence and activity. The problem of 60 monthly observations was simplified by aggregation to nine six-month intervals from the summer of 1967 to the summer of 1971. The problem of considering 44 provinces was simplified by obtaining three clusters of provinces which are similar to each other in terms of three distinct patterns of the war which were identified in an OASD(SA) 1970 military region analysis. The results are a description of the characteristics which distinguish the three patterns (province clusters) and an evaluation of the variations of province cluster composition and unique characteristics over the nine time periods.

Findings

Province Cluster Profiles

(U) This analysis demonstrates that there are three major types of war in South Vietnam. They are characterized by distinctive patterns which occur in varying mixes in 31 of the 44 provinces. The wars are given the following names: main force, hybrid, and guerrilla. These war types are technically described in Table I-1. Less rigorously, the "main force" and "guerrilla" wars can be characterized as evidencing the distinction between regular unit activity and local unit activity. It is important to note from Table I-1 that both troop strengths and results are significant characteristics of these typologies. In addition to "main force" and "guerrilla" typologies, a third distinct pattern of conflict is found. This "hybrid" war is a result of a unique pattern of interaction or combinations of local and main force activity.

(U) TABLE 1-1.

WAR TYPE CHARACTERISTICS SUMMARY

<u>Indicator</u>	<u>Main Force</u>	<u>Hybrid</u>	<u>Guerrilla</u>
War Deaths	High	High	Low
Total Enemy Personnel Strength	High	High	Low
NVA Combat Unit Personnel Strength	High	Average	Low
VC Percent of Enemy Combat Unit Strength	Low	Average	High
VC Small Unit Local Strength	Average	High	Average
Total VCI Strength	Low	High	High
Total Friendly Personnel Strength	Average	High	Average
RF/PF Personnel Strength	Low	High	Average
Total Enemy Initiated Incidents	High	High	Low
Friendly Large Operations	Average	High	Average
Friendly Small Operations	Low	High	Low
RF/PF Percent of Friendly Deaths	Low	Low	High

(U) Reference to the above table indicates the degree to which the hybrid war type dominates the magnitudes of the indicators. The only "low" rating for hybrid war is the RF/PF (territorial forces) percent of friendly deaths. Main force and guerrilla war, on the other hand, show a great deal more diversity in comparison. Main force war is very high in enemy NVA strength, enemy incidents, and total war death variables. This war type is the scene of a war of attrition, with particularly heavy fighting in lightly-populated areas. These indicators are also absorbed in the hybrid category. However, the hybrid war, in addition, assimilates characteristics of the guerrilla war which are of low consequence to a main force environment: high percentages of local troop strengths, lower levels of conflict, and more highly populated surroundings. In essence, therefore, the hybrid war denotes those areas where combat is heavy, casualties are high, all troop levels are utilized and population is substantial.

(U) As important as designation of war activity and characteristics are the patterns which can be observed over time. The war has presented a very observable current of activity which displays a large degree of constancy and, therefore, some accompanying predictability. Hybrid war provinces have been consistently representative of areas in which friendly strength, regular and territorial, faces threat of heavy enemy incidents and resultant casualties. Large portions of Military Regions I and IV demonstrate hybrid characteristics, but most often with concomitant main force and guerrilla distinctions. Therefore, the hybrid category is not a separate entity itself inasmuch as it constitutes a structure defining those areas in which portions of both main force and guerrilla war take place.

(U) The period between October 1968 and April 1970 sees the war acquiring relatively unchanging characteristics. Both the patterns and magnitudes remain stable. The patterns, in fact, become increasingly clearly defined. The spring/summer of 1970, however, saw the most striking increase in activity since the TET (February, 1968). Concomitant with U.S. withdrawal, hostilities began to flare. Total combat deaths alone increased by 30%, this being the sharpest ascent since the TET offensive. However, whereas the TET offensive resulted in weak and diffuse war patterns, followed nine months later by return to stability, the summer of 1970 activity produced highly patterned behavioral characteristics.

(U) By 1971, the war has attained even a greater degree of stability and strength. What variation there is appears to be a function of the winding down of activity and withdrawal of U.S. forces. The following conclusions can be derived from the data analyzed for 1971:

- . Total war deaths are declining in all provinces but those in the guerrilla war structure.
- . Friendly deaths are significantly decreasing in most provinces.
- . Friendly combat strength has declined somewhat in both main force and hybrid provinces, while the guerrilla provinces (Military Region IV) are experiencing a conspicuous increase in friendly support.
- . The percentage of territorial force (RF/PF) deaths is increasing in all provinces.

(U) These conclusions offer a picture of a war on the decline, although one which has changed character over the years from a substantially regular unit battle to one being fought more predominantly at a local level. Yet despite the steadily falling troop strength, the VC-NVA have been able to hold the level of their initiative (number of incidents) essentially constant. They can be expected to re-introduce large numbers of regular forces if a shift from the protracted war strategy appears desirable or necessary. The shift from large unit domination of the war to a more local war reflects both the VC-NVA strategy change and the way in which the ARVN and RF/PF have adapted themselves to carry out the main combat role with U.S. withdrawal. The large scale escalation by the NVA-VC in 1972 will require further changes by the RVNAF when their organization and deployment may have been at near optimum for the protracted war threat, yet as events have shown, very weak and dispersed with respect to the large unit war threat that was faced.

(U) The three types of war essentially describe a pattern of activities which to varying degrees have existed at least since 1967. Even though the basic structure has not changed, the clarity of the patterns has steadily improved. Although no proof yet exists, the comparison between the conduct of the war and the patterns is very striking. It is worth noting that contrary to the opinions expressed by many skeptics, the withdrawal of U.S. forces did not result in a major disruption of the war. Rather, the strength of the patterned characteristics increased despite (and perhaps because of) the withdrawal of U.S. and third country forces.

(U) Finally, on a very general level, the clustering analysis raises some fundamental questions about the nature of revolutionary and counter-revolutionary efforts. It is suggested (but not proved), that the real conflict occurs not over what ground rules will be used, but whether they will be employed. Once a set of implicit rules for accepted and prohibited behavior are established (whatever that may be) the guerrilla forces have suffered a loss. Conversely, if the counter-revolutionary forces cannot force some boundaries to the conflict, they may have no chance of winning. The reasons are that once the patterns are set, the government forces can prepare appropriate defenses and offenses. Since the government generally has at its disposal a wider base of resources, it can succeed if it can only plan what it must succeed at. The data would indicate that this thesis might be true. As was noted earlier, however, it remains to be subjected to a formal test.

Cambodia and Laos

(U) The main force, guerrilla and hybrid war types provide a logical structure for a description of the war in South Vietnam on a province by province basis.

The use of Cambodia and Laos as supply routes and sanctuaries for the NVA and VC, as well as the extension of ground combat into Cambodia and Laos in 1970 and 1971, has made these countries an integral part of the war in South Vietnam. The nature of the war in Cambodia and Laos is examined by comparing the strength and deadliness figures with the South Vietnam province averages.

(U) Although Laos is found to represent a special case, Cambodia appears to have had the effect of adding three main force war provinces to South Vietnam. Models which explain the process at work in the main force war type can probably also be applied to Cambodia. It should also be possible to project trends for the activity in each war type, including the three main force provinces for Cambodia, as a guide to force structure planning and estimating future levels of military activity.

Implications

(U) The basic simplification and structuring of the Vietnam War as described in the data used in this research has meaning for the Government and for further quantitative analyses of the war. For decisionmakers monitoring the progress of the war, a relatively small set of key indicators have been identified which will reflect any significant change in the character of the war. The identification of redundant measures of the same basic concept also has implications for the simplification or reduction of data reporting systems. Future analyses of the concepts defined by this research can be carried out using only a relatively small number of variables to measure these concepts as the study moves into efforts to explain and predict. The differences across provinces can readily be incorporated into time series analyses for this effort by the use of province associations with the major war patterns as variables. Finally, a key question for future research is implied by the finding that the major war patterns have become more pronounced through time. Is the highly structured war found in 1971 the result of GVN initiative or otherwise?

SECTION II

INTRODUCTION

Purpose

(U) This study is a supplementary analysis to our paper, Analysis of Vietnamization: A Description of the War, 1967-1970.² Specifically, this report more intensively examines the Province Cluster Profiles of the aforementioned paper. Without going into a complete justification of the need for continuation of such analyses or for an empirical description of the war in Vietnam, it would be helpful to briefly summarize the purposes of the research and the basic procedures which are being followed. In the most general sense, this analysis is a search for a series of quantitatively based descriptions of selected social-political-military processes in Vietnam which are of central importance to decision-makers. These descriptions are the initial effort in a program oriented toward two basic types of outputs:

- . Explanation of the basic processes involved in Vietnam to enable decision-makers to more accurately assess the situation knowing the current status of and changes in existing processes.
- . Identification of the causal relationships between actions and effects in the Vietnam War to provide decision-makers with the ability to predict and control the probable outcomes of their decisions.

Thus, the purpose is to provide decision-makers with tools to implement their management role through better understanding of the situation and its implications and through monitoring and controlling their efforts to influence that situation.

Research Strategy

(U) Substantively, the foci of attention might be divided according to friendly or enemy activities. The study of only enemy activities is more

² (U) Analysis of Vietnamization: A Description of the War, 1967-1970, ARPA Order No. 1770; Contract No. DAHC 15 71 C 0222; Bendix Corporation, November 1971, (CONFIDENTIAL).

likely to produce the first type of output. Analysis of friendly behavior can produce both types. It is possible, indeed probable, that there are major portions of VC-NVA activities which are not normally subject to influence by either American or South Vietnamese initiatives. Examination of this type of influence relationship should not be precluded, but the primary emphasis will be directed at identification of regularities in enemy activity which can be explained and predicted from evidence of other processes which have historically preceded changes in enemy behavior.

(U) A number of major measurement systems have been introduced into Vietnam for a variety of reasons. Although the breadth of measurement has the advantage of providing indicators of an extremely wide variety of phenomena, it has the disadvantage of overwhelming the analyst with a quantity of data so great that he must carefully and systematically reduce it down to a few critical indicators. From literally thousands of candidate indicators, we organized a listing of variables which index the following general concepts:

- GVN, U.S., and 3rd Country Military Activities.
- GVN, U.S., and 3rd Country Resources.
- VC and NVA Military Activities.
- VC and NVA Resources.
- GVN Political and Economic Activities.
- VC and NVA Political and Economic Activities.
- Cultural and Economic Factors.
- Other Environmental Factors.
- Popular Attitudes.
- Political Behavior.

(U) This report develops our previous province cluster profile study which was designed to simplify the description of the war represented by the data for the first four of those general concepts, friendly and enemy military activity and resources. This task, which will be described in detail in Section IV, deals with the fact that military resources and activity are not uniformly distributed throughout South Vietnam. There are differences between provinces, the basic unit of analysis for this study, and those differences could explain important aspects of the enemy behavior and the processes involved in the conduct of the war. This task revolves around the identification of province characteristics.

Research Methods

(U) The analysis techniques employed were several variations of factor analysis. A detailed example of the application of this technique to a simple problem is presented in Appendix A. The selection of data for analysis in both tasks involved both the deletion of some variables to eliminate redundancy and the combination of other variables to create aggregate indices. For example, several data sources contained variables which measure the number of ARVN operations. For both tasks the variable selection retained the large unit-small unit distinction; however, the variables selected were those from the OPREP reporting system. This selection was on both the basis of completeness of the time series and the substantive meaning inherent in the number of operations with contact as opposed to the total number of operations conducted as reported over a shorter time period by the SEER reporting system.

(U) This data selection resulted in 22 variables for 44 provinces which enabled the description of differences between provinces to be reduced from 44 provinces to four groupings or clusters of similar provinces. The substantive meaning of these four groupings was enhanced by a technique of fitting them to four categories of provinces identified in an OASD(SA) 1970 military region analysis.³

(U) U.S. statistics had been deliberately downplayed or eliminated in our paper last November because of a primary concern with the South Vietnamese aspects of the war. This paper represents an attempt to provide a more complete picture of the total war effort by inclusion of U.S. data. We will be able thereby to assess the Vietnamese war effort against the exigencies of the U.S. withdrawal.

³ (U) "The Situation in South Vietnam," Southeast Asia Analysis Report, November/December 1970, OASD(SA), Regional Programs, Washington, D. C., December 1970, (SECRET-NOFORN).

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SECTION III

BACKGROUND AND APPROACH

Background

(U) In a 1970 analysis of the situation in Vietnam, OASD(SA) intuitively identified types of provinces in which distinctly different types of activities (war) occurred.⁴ This was accomplished through the examination of seven variables which measure types of warfare. The clustering technique used in this military region analysis to identify the provinces and types of warfare is described in the following excerpt:

Where the War is Being Fought

An even closer look at the war reveals it is being fought mainly in 10 provinces of South Vietnam (see Map page III-2). The intensity of the conflict in the other 34 provinces is very low.

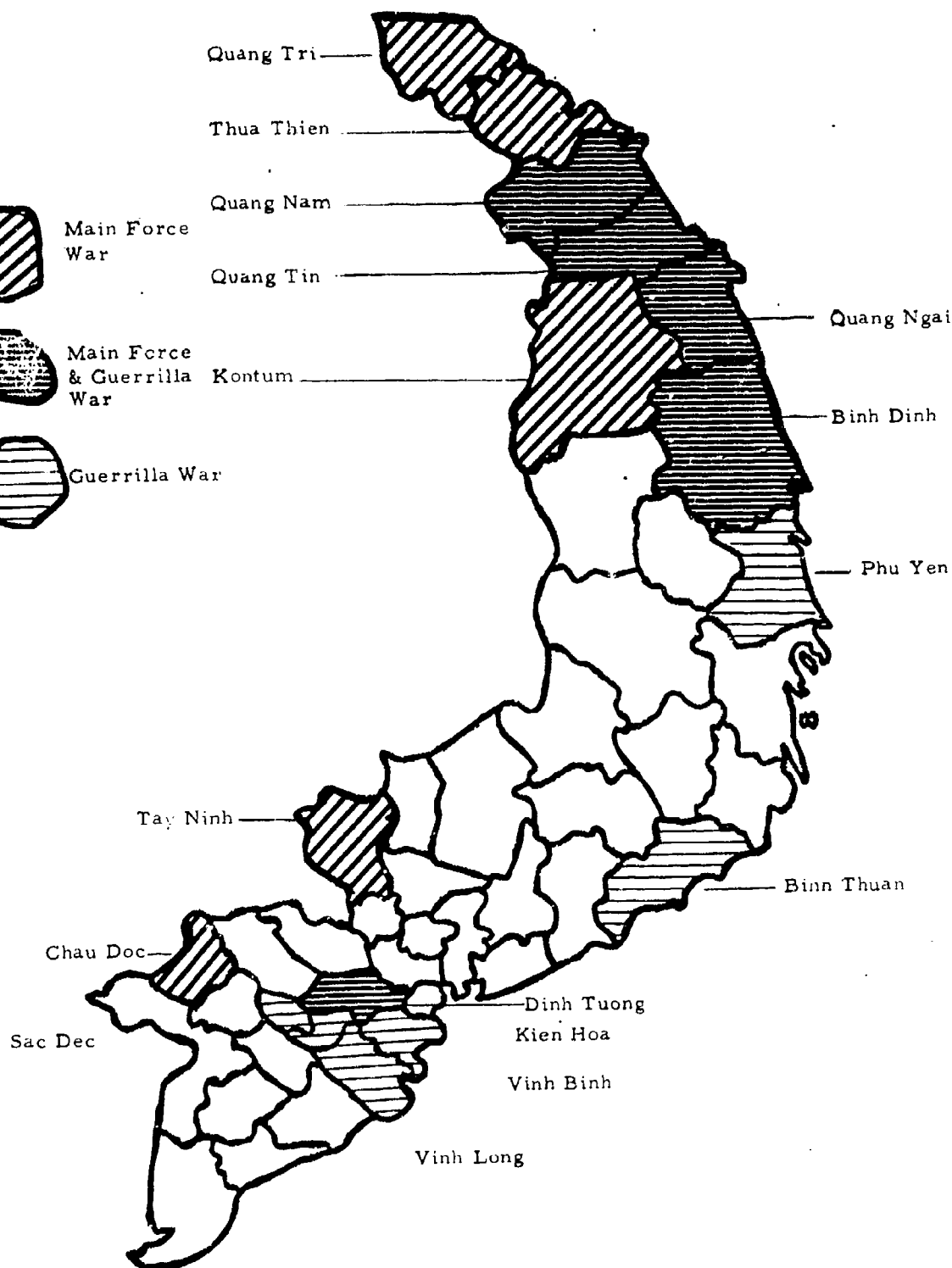
These 10 provinces, Quang Tri, Thua Thien, Quang Tin, Quang Nam, Quang Ngai (MR I), Kontum, Binh Dinh (MR II), Tay Ninh (MR III), Dinh Tuong and Chau Doc (MR IV) comprise 23% of the SVN provinces, but account for:

- 53% of the allied deaths (US and SVN).
- 72% of the US combat deaths.
- 62% of the enemy KIA.
- 56% of the enemy attacks.

These provinces contain 54% of the allied regular combat strength, and about 58% of the enemy's combat strength.

A fairly straightforward main force war is being fought in five of the provinces:

⁴(U) "The Situation in South Vietnam," op. cit., pp. 3-5.



(U) WHERE THE WAR IS FOUGHT

- . Quang Tri
- . Thua Thien
- . Kontum
- . Tay Ninh
- . Chau Doc (because of the NVA influx during late 1969 and early 1970)

In the other five, a complex mixture of main force and guer-rilla war is being fought, caused by a strong enemy main force presence closely linked with a strong, well-entrenched VC infrastructure (VCI):

- . Quang Nam
- . Quang Tin
- . Quang Ngai
- . Binh Dinh
- . Dinh Tuong (to a lesser extent)

To illustrate the point, these five provinces contain over 35% of the US/FW combat strength and more than 20% of the ARVN/VNMC combat strength facing about 25% of the enemy's regular combat strength. Additionally, 20% of the country's RF/PF face 28% of the enemy's separate unit (company or platoon) and guerrilla forces there. Nearly 30% of all KIA (both enemy and friendly) occur there, as well as about 20% of all the terrorist incidents. The five provinces also contain over 30% of the nation's VCI.

Five other provinces are of continuing interest because they feature a high level of guerrilla warfare and contain about 25% of the reported VCI:

- . Phu Yen
- . Binh Thuan
- . Kien Hoa
- . Vinh Binh
- . Vinh Long

(U) The Analysis of Vietnamization paper done by Bendix in November, 1971, elaborated on the war descriptions as identified in the above excerpt. Our time span covered April 1967 through September 1970, divided into 7 six-month time periods. These time periods began in April and October of

each year for purposes of distinguishing seasonal variations within the data.⁵ As mentioned in the Research Methods described above, ARVN variables were emphasized in the data base while U.S. strengths and activities indicators were largely excluded. This strategy led us to utilize the following 27 variables:

Bendix Variable List		OASD(SA) Variable List
Total Deaths	1) Total combat deaths in friendly initiated actions	Total U.S. combat deaths
	2) Total war caused deaths (friendly and enemy)	Enemy combat deaths
	3) Total allied deaths	Total allied deaths
	4) Enemy attacks	Enemy attacks
Total Strength VCI Strength	5) Enemy combat strength	Enemy combat strength
	6) GVN combat strength	Allied combat strength
	7) VCI total strength	VCI strength
	8) VCI high level strength	
Main Force War Candidate Variables	9) % of GVN KIA on ARVN/VNMC large scale operations	
	10) % of total deaths for ARVN/VNMC	
	11) % of incidents targeting military	
	12) NVA combat unit % of enemy strength	
	13) VC combat unit % of enemy strength	
	14) ARVN/VNMC % of GVN strength	
	15) Total friendly large scale operations	
	16) ARVN/VNMC % of friendly large operations	
	17) ARVN/VNMC % of total friendly operations	
	18) ARVN/VNMC personnel strength	
Small Scale/ Guerrilla War Candidate Variables	19) % GVN KIA on ARVN/VNMC small scale operations	
	20) % GVN KIA on RF/PF operations	
	21) % total deaths for RF/PF	
	22) % of incidents targeting civilians	
	23) VC local unit personnel strengths	
	24) Total friendly small scale operations	
	25) RF/PF % of friendly small operations	
	26) RF personnel strengths	
	27) PF personnel strength	

⁵ (U) There are two principle seasons in Vietnam: hot and monsoon. The southern part of the country experiences the southwest monsoon which lasts from May to October. The northern part of the country undergoes the northeast monsoon which lasts from September through February.

(U) To make the translation from these measures to a clustering of provinces analogous (but not necessarily similar in content) to that developed by OASD(SA) analysis, the following logic was utilized. The set of values for each province across the 27 variables defined a series of 44 province profiles. This analysis sought simplification of the 44 profiles by grouping provinces according to the degree of similarity in their profiles. For example, if there was a group which was high in GVN KIA in friendly initiated actions, high in total war caused deaths, and low on percent GVN KIA on RF/PF operations, etc., it would be expected to identify them as a group of provinces exhibiting the characteristics of one type of war.

(U) It should, however, be recognized that no two provinces are identical, and that many provinces might exhibit some characteristics similar to one province and some like another. Because of this, it was necessary to initially develop measures of the level of similarity between each pair of provinces. This can be achieved by correlating each of the province profiles across the 27 variables.

(U) As an illustrative example, the correlations between eight selected provinces are presented in Table III-1. These are provinces which appear

(U) TABLE III-1.

CORRELATIONS BETWEEN EIGHT
EXAMPLE PROVINCES - 1970 DATA⁶

	Quang Tri	Thua Thien	Kontum	Tay Ninh	Vinh Binh	Vinh Long	Ba Xuyen	Kien Hoa
Quang Tri	1.000							
Thua Thien	.468	1.000						
Kontum	0.567	0.493	1.000					
Tay Ninh	0.759	0.444	0.617	1.000				
Vinh Binh	-0.365	-0.320	-0.221	-0.296	1.000			
Vinh Long	-0.395	-0.250	-0.547	-0.385	0.663	1.000		
Ba Xuyen	-0.493	-0.477	-0.621	-0.427	0.620	0.862	1.000	
Kien Hoa	-0.290	-0.228	-0.427	-0.286	0.465	0.693	0.526	1.000

⁶(U) The correlation coefficients are measures of pattern similarity between the provinces. They range from -1.0 which indicates that the provinces are exact opposites to +1.0 which indicates that they are identical. A correlation of 0.0 indicates that there is no observed systematic similarity or dissimilarity between the provinces.

to characterize main force war and guerrilla war in 1970. It can be seen that the highest set of correlations exists at the intersections of the provinces within the similar types of war and that the lowest is at the intersection of main force war with guerrilla war. From this examination it is possible to expect that clusters would probably be similar to the OASD(SA) clusters.

(U) Figure III-1 further illustrates similarities and differences in province profiles. The profiles on the 27 variables for Quang Tri and Tay Ninh which are highly correlated main force war provinces are drawn in dotted and dashed lines. Ba Xuyen which is a guerrilla war province and uncorrelated with these two is shown in the solid line. The similarity between Quang Tri and Tay Ninh is clear. Ba Xuyen, on the other hand, has a profile which is dissimilar to the other two. These statistics enabled this analysis to disentangle the set of forty-four profiles into a small number of meaningful groups of provinces (for details see Appendix B).

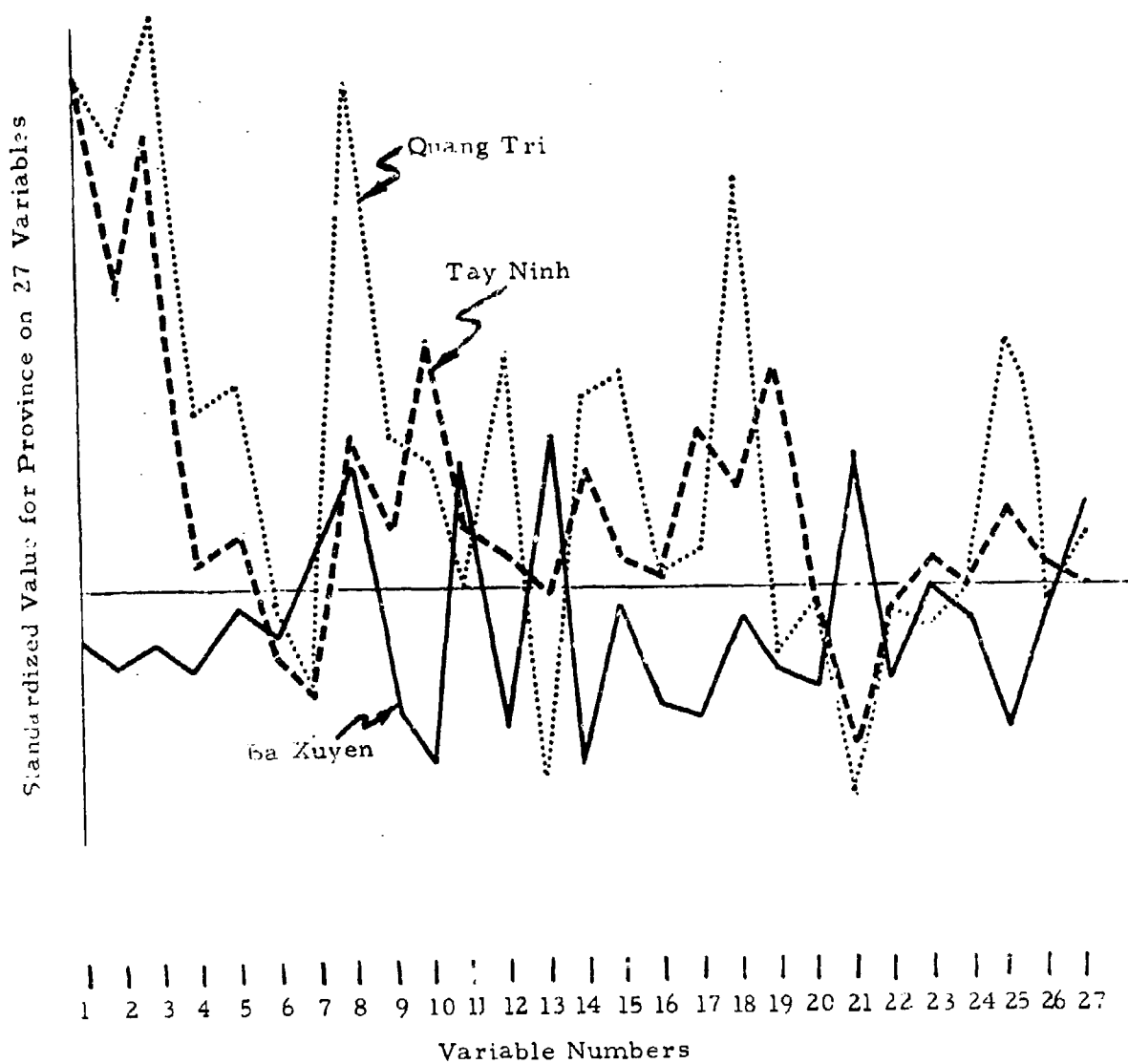
(U) Using these variables, the three war types -- main force, hybrid and guerrilla -- were found to be characterized by distinctive patterns which occur in varying mixes in 34 of the 44 provinces. The main force and guerrilla war types were found to basically evidence the distinction between regular unit activity and local unit activity. Examination of Table III-2 indicates that both troop strengths and results are significant characteristics of these typologies. The hybrid war typology was found to be a unique pattern of interaction or combinations of local and main force activity. In the hybrid war provinces, the regular force units apparently do the greatest portion of the fighting, while the local forces provide a stable reserve to protect the population against guerrilla activities and overflow from the regular unit combat. The hybrid is distinguished from main force war in that the local units, if present, apparently absorb heavy casualties when caught up in main force combat. It is differentiated from guerrilla war, however, by the presence of the regular force buffer.

(U) The analysis also disclosed, however, that it is possible for high levels of conflict to exist without being identified as one of the major types of war. This situation occurs when the activity, although high, does not exhibit the patterns which were identified as one of the three categories. This was particularly manifested during the TET offensive of February, 1968. Simultaneous with the pre-established patterns of activity in categorized provinces, the TET and May, 1968 offensives and their aftermath inspired unusual distributions of resources and activities.

(U) The three types of war were essentially found to describe a pattern of activities which to varying degrees have existed from at least 1967. Even

(U) FIGURE III-1

QUANG TRI, TAY NINH, BA XUYEN 1970 PROFILES



(U) TABLE III-2.

WAR TYPE CHARACTERISTICS SUMMARY

	Main Force	Hybrid War	Guerrilla War
Total GVN deaths in friendly initiated actions	High	High	Medium
Total allied deaths	High	High	Low
Total war caused deaths (friendly and enemy)	High	High	Low
Enemy combat strength	High	Medium	Low
NVA/VC combat strength	High	Medium	Low
VCI total strength	Low	High	High
High level VCI strength	Low	High	High
% total deaths for RF/PF	Medium	Low	High
% RF/PF in small scale operations	Low	Low	High
RF personnel strength	Low	High	High
PF personnel strength	Medium	High	High

though the basic structure had not changed, the clarity of the patterns had steadily improved. Although no proof existed, the comparison between the conduct of the war and the patterns was found to be very striking. The clustering analysis raised some fundamental questions about the nature of revolutionary and counter-revolutionary efforts. It was suggested (but not proven), that the real conflict occurred not over what ground rules would be used, but whether they would be employed. The thesis presented was that once a set of implicit rules for accepted and prohibited behavior are established (whatever that may be), the guerrilla forces have suffered a loss. Conversely, if the counter-revolutionary forces cannot force some boundaries to the conflict, they may have no chance of winning. The reasons are that once the patterns are set, the government generally has at its disposal a wider base of resources, and it can succeed if it can only plan what it must succeed at. The data would indicate that this thesis might be true. As was noted earlier, however, it remains to be subjected to a formal test.

Approach

(U) Because of the inclusion of U.S. data in the clustering of provinces for this analysis, it was necessary to make changes in our original list of 27 variables. In addition, we were able to restructure several variables on the basis of information derived from a factor analysis carried out by this office of seventy-one variables reflecting the primary concepts of military resources and activity. From this study, a relatively small set of key indicators were identified which can reflect significant changes in the character of the war. Redundant measures of the same basic concept were identified, having implications for the simplification or reduction of data reporting systems.

(U) Examples of elimination of redundant measures in our list of variables include:

- Combining the RF strength and activity measures with PF strength and activity measures because both essentially describe friendly local unit and territorial force indicators.
- Eliminating high level VCI strength because it essentially measures the same thing as total VCI strength.
- Eliminating the ARVN/VNMC % of friendly large operations and the ARVN/VNMC % of total friendly operations in order to place emphasis on large operations versus small operations and regular unit operations versus territorial force operations, rather than on U.S. troop operations versus GVN troop operations.

(U) The new variable list became the following:

1. Total Friendly Deaths in Friendly Initiated Action
2. Total Friendly Deaths
3. War Deaths
4. Enemy Initiated Incidents
5. Enemy Personnel Strength (Combat)
6. Friendly Personnel Strength (Combat)
7. Total VCI Strength
8. Percent of Friendly Regular Unit Deaths on Large Unit Operations
9. Friendly Regular Unit Percent of Total Deaths
10. Percent of Total Enemy Attacks Targeting the Military
11. NVA Unit Strength
12. VC Percent of Enemy Combat Strength

13. Regular Force Percent of Total Friendly Military Strength
14. Total Friendly Large Unit Operations
15. Percent of Friendly Regular Unit Deaths on Small Unit Operations
16. Percent of Friendly Deaths on RF/PF Operations
17. Total Friendly Small Unit Operations with Contact
18. RF/PF Percent of Total Friendly Small Unit Operations
19. VC Local Unit Strength
20. RF/PF Strength
21. Percent of Total Enemy Incidents Targeting Civilians
22. RF/PF Percent of Total Deaths

(U) The same logic as described for our previous study was utilized to make the translation from these measures to a clustering of provinces analogous to that developed by our previous findings. The set of values for each province across the 22 variables defines a series of 44 province profiles. This analysis seeks simplification of the 44 profiles by grouping provinces according to the degree of similarity in their profiles.

SECTION IV

PROVINCE CLUSTER PROFILES

IV-1 Patterns of the Vietnam War

(U) With U.S. data three types of war have again been identified, main force war, hybrid (main force and guerrilla) war, and guerrilla war. It should be emphasized that the labels "main force and guerrilla" do not indicate that they are identical to the traditional meanings of these terms. Vietnam is an unconventional war and the traditional vocabulary is not as applicable as might be desired. It should be recalled that the analysis was to identify those distinct patterns of activity which have occurred in the Vietnam conflict. This is different than starting with traditional definitions of conventional and guerrilla war and subsequently attempting to find them in this conflict situation. The readers should interpret the results with the understanding that the patterns of activity which are presented describe the characteristics of the war as they have occurred in Vietnam independent of the patterns which may have been found elsewhere.

(U) In addition, the patterns of activity will be seen to change with the shifts in the war. For example, the patterns which have been labeled hybrid and guerrilla war changed character in the time period between October 1967 and October 1968. This resulted because of the February 1968 TET offensive. The distinctions between the hybrid war category and the guerrilla war category became blurred and very difficult to distinguish following TET. An examination of the war types in our last study showed that the only major difference between hybrid and guerrilla wars in the post-TET period was the ratio of NVA to VC: In hybrid war provinces, the VC outnumbered NVA by approximately 2 to 1 whereas in guerrilla war provinces, the forces were almost entirely VC.

(U) The limitations of our data set may partially explain the lack of contrast. However, it is also known that the TET offensive resulted in a wide-scale, albeit temporary, reorganization of both friendly and enemy effort. After the TET, the VC/NVA effort subsided as many of them retreated to Cambodian

and Laotian sanctuaries. The friendly forces, on the other hand, were engaging in extensive sweeping operations. Therefore, the observable patterned activity began to change.

(U) For readers familiar with our previous study it will be noticeable that in this analysis the U.S. data has caused some re-defining of the war type categories. The reason is that the inputs of the expanded data base have rearranged the boundaries of regularity in each of the war type categories. Thus, we have enlarged the existing known descriptors of each province. This broadened data perspective has produced a realignment of provinces by their profile similarities. These groupings, in turn, have appeared as patterns or factors delineating distinct new clusters of interrelated data.

(U) The clusters identified are defined by distinct characteristics of their profiles on different variables. Figure IV-1 summarizes the average cluster profiles for the 22 variables examined in this analysis by illustrating the differences between the countrywide averages and the averages for the three war types measured in standard deviation units. Referral to this figure in reading the pursuant passages will be helpful in visualizing the relationships between the three war types.

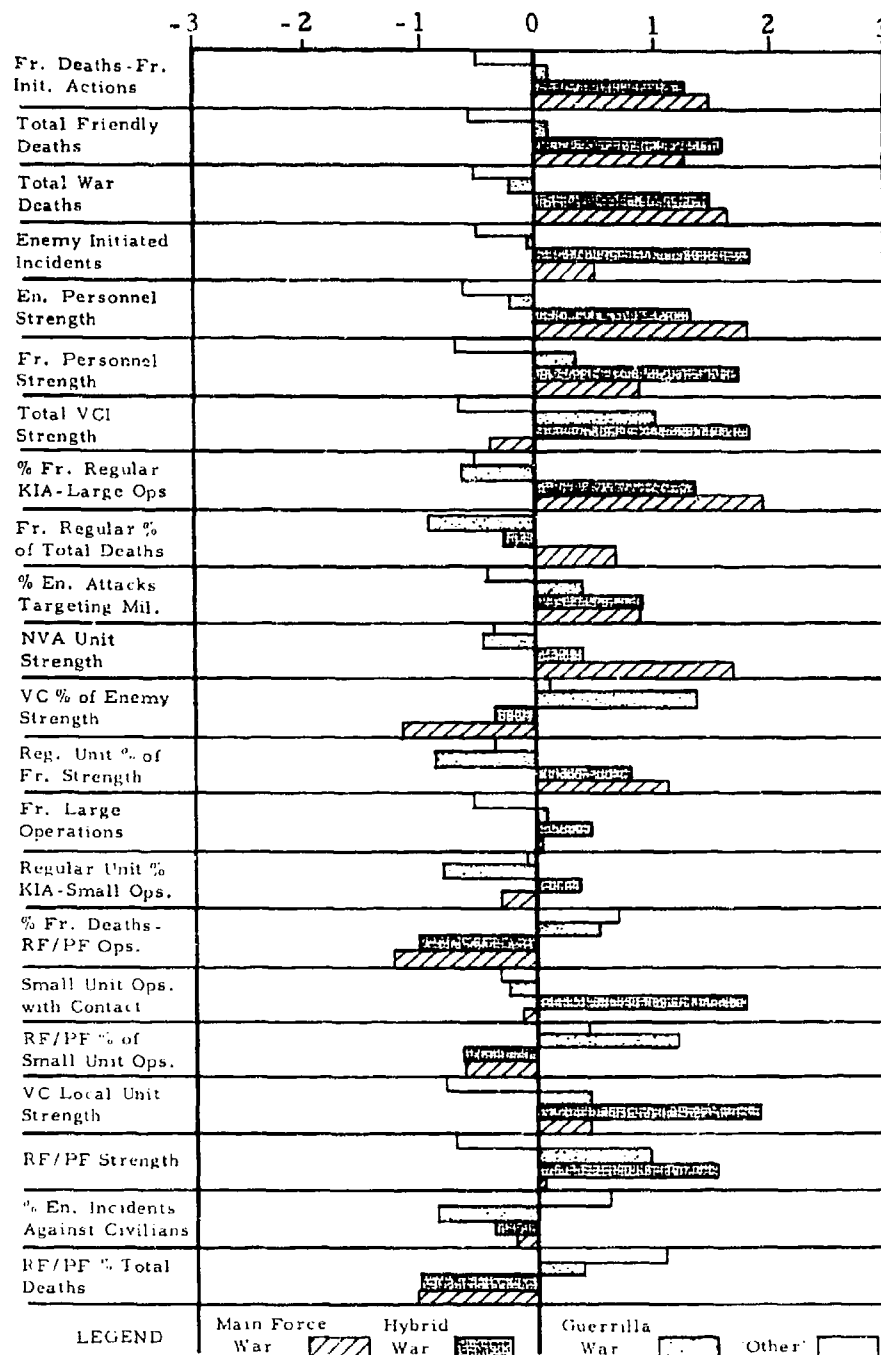
The Hybrid War Cluster

(U) The hybrid war cluster had higher means for more variables than any other war category in this study. Several provinces fell into the hybrid loading at some time during the nine time periods. However, five provinces became consistently illustrative of a hybrid war environment: Quang Nam, Quang Tin, Quang Ngai, Binh Dinh, and Dinh Tuong. Interestingly, each of these provinces classifies as fairly populous, all having 400,000 or above as a population total.

(U) If one views the GVN as extending its influence from the areas of prime advantage (e.g., cities and more densely populated adjacent areas) where the GVN has had a more prolonged administrative presence, hybrid war becomes a phenomenon involving the extension of such presence and influence. Hybrid war, in contrast to a main force environment, which occurs in sparsely populated regions, is a phenomenon involving more densely populated areas because of its high values for variables likely to be associated with large communities of people -- such as, VCI strength, VC local unit strength and VC percent enemy combat strength. Hybrid war also represents the areas which contain the largest masses of both regular and territorial troop strength, and ranks

(U) FIGURE IV-1.
AVERAGE CLUSTER PROFILES⁷

BSR 3334



⁷ The bars for each war type represent the difference between the country-wide averages for the 22 variables and the averages for the four war types measured in standard deviation units. Thus, the countrywide mean is the zero value on this display with the cluster profiles being unique characteristics in terms of their position above or below this zero level.

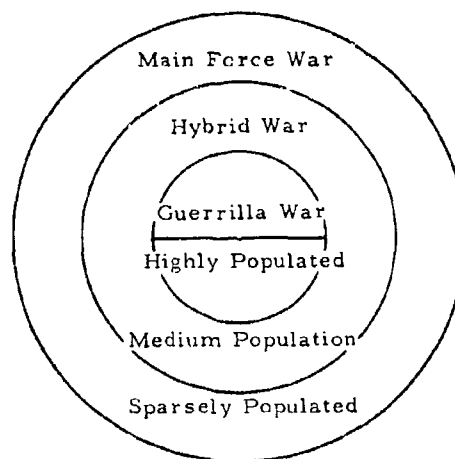
second to one other war type (main force) in terms of NVA units.⁸ More deaths by friendly units results in the hybrid war areas than in any of the other war types. Unlike a guerrilla war situation which may be viewed as involving sustained low level confrontation of local (territorial) forces, hybrid war involves high magnitudes of death totals, enemy incidents, friendly combat strength and percentage of friendly KIA on regular small unit operations.

(U) Unlike both main force and guerrilla war, the hybrid war category has above average scores for total friendly combat strength and number of small unit operations, which along with low percentages of RF/PF casualties, suggest a particularly conspicuous role for the ARVN.

(U) It may be plausible to consider the hybrid category, therefore, as that type of war located in the "middle-ring" of GVN activities. Combat activities indicative of hybrid war may be initiated in order to pressure local VC forces and to respond to NVA infiltrations that have managed to pierce the "outer-ring" (main force war) of defenses, while protecting the population in the "inner-most ring" (in pacified cities and province areas) from NVA/VC incursions. Figure IV-2 illustrates this concept:

(U) Figure IV-2.

Inner, Middle and Outer-Most Ring of GVN Activity



⁸ (U) It should be noted that the NVA/VC distinction is based on how the enemy order of battle is reported. Combat units with VC identification designators have steadily been becoming NVA units as their ranks have been replenished primarily by infiltration of NVA personnel rather than local recruitment.

(U) The hybrid war is characterized by heavy concentration of local force units, however, the percentages of RF/PF deaths is consistently found to be below average. The majority of casualties in the hybrid war are inflicted on those friendly regular force units which are in the area. It appears that the hybrid war is one in which regular maneuver battalions are assigned to engage the enemy (or defend against his main force attack) while the RF/PF units serve as a backup to protect the population either against overflow from the main force engagements or against local force attacks and harassments.

(U) It is interesting to note that when the hybrid war moves in either direction, toward main force or guerrilla war, the RF/PF begin to absorb much higher casualty levels. As the war moves in the main force direction, it becomes necessary for the RF/PF units to abandon their defensive role and become involved in the main force war types of activity. This is particularly true in I corps where US/RF cooperation is reportedly strong. With their changing role, local units absorb larger percentages of the casualties. As the hybrid war shifts toward a guerrilla war pattern, the RF/PF lose their main force buffer and of necessity absorb larger percentages of the casualties.

(U) Summarizing, the dominant characteristics of the hybrid war are shown below.

- . High averages for friendly death-related variables.
- . High levels of troop strength, both friendly and enemy, NVA combat strength being the only exception.
- . Heavy deployment of local and guerrilla forces by both the friendly and the enemy, but relatively low levels of local force casualties.
- . High levels of enemy incidents, but low percentages of incidents against civilians.
- . High levels of VCI strength.
- . High averages for both large and small unit operations.
- . Low percentages of small operations by the RF/PF.

The Main Force War Cluster

(U) Main force war is a phenomenon uniquely high in terms of NVA strength. In this study, the main force characteristics were most consistently represented in five provinces: Quang Tri, Thua Thien, Kontum, Pleiku and Tay Ninh. A main force war distinction is found to occur only in sparsely populated areas. Of the five provinces listed above, only one (Thua Thien) has a population in excess of 400,000. "It is clear that the main force war is being fought in predominantly thinly populated or unpopulated areas. This association probably results from the mutual association of main force war and low population density with yet a third consideration, that being topographical conditions and geographic locations."⁹

(U) Unlike the hybrid or guerrilla war situations, main force war has low scores on such population variables as VCI strength, percentage VC combat strength and RF/PF percentage of operations and total deaths.

(U) As observed above, the main force war appears to be distinguished from other wars by its preponderance of NVA unit strength, percentage of friendly regular unit strength and deaths (U.S. and ARVN), as well as high total combat deaths (friendly and enemy). Main force combat, therefore, appears to typify confrontation between regular forces and involvement in combat in an "attrition" war.

(U) This interpretation supports the view of main force war characterized as an "outer-ring" of forces designated to kill and be killed by NVA units and to halt incursions. Main force regular units are concerned primarily with area in which to disperse and best maneuver to engage in combat under favorable conditions. It is likely that main force war is designed to halt large-scale NVA initiatives. As such, it takes place where conditions favor bases for the NVA, which best loan themselves to fairly sophisticated logistic support, and suitable friendly targets and approaches for such incursions. It appears to be a goal of the GVN and U.S. forces to prevent build-up of NVA and thereby halt NVA incursion from this area of the war into the more strategic, populous areas of the inner rings.

(U) In summary, the main force war can be described by the following characteristics:

⁹ (U)Adkins, John, War Type, Population and Security: Keeping the Basics in Mind; BSR 3300, ARPA Order No. 1770; Contract No. DAHC 15 71 C 0222; Bendix Corporation; January, 1972, p. 3-1.

- . High percentages of NVA troop strength.
- . High average regular unit percents of friendly combat strength and resultant deaths.
- . High magnitudes of total war deaths.
- . Low averages for local war/population-related variables, e.g., VCI strength, RF/PF KIA, etc.
- . High total enemy initiated incidents.

The Guerrilla War Cluster

(U) Guerrilla war has only two variables for which it is dominantly above average: VC unit percent of enemy strength and percent small operations by RF/PF forces. These variables are indicative of the local (territorial) force character of the war in guerrilla war provinces.

(U) Nonetheless, the guerrilla war cluster is low in combat dynamic variables relative to hybrid and main force war. Guerrilla war provinces have low averages for all results data, for enemy strength -- particularly NVA -- and total friendly small operations. The friendly combat strength levels in these provinces are to a large extent made up of RF/PF forces.

(U) Of the provinces which load in the guerrilla war cluster at some time in this study, six became consistently representative of the guerrilla war environment: Kien Hoa, Vinh Binh, Vinh Long, Kien Giang, Phong Dinh and Ba Xuyen. All six of these provinces fall within Military Region IV and have populations ranging between 400,000 and 600,000. These population figures are higher than all main force war provinces (excepting Thua Thien) and on a par with most hybrid provinces.

(U) The guerrilla war is high, of course, on such population related variables as total VCI strength, and RF/PF percent of friendly deaths. The average profile variables for this war type clearly indicate the relatively population-oriented character of the provinces making up this cluster. As a low-level war of the "inner-most ring" of pacification, such war can and does change for any number of reasons. However, the fact that the level of combat has been at a relatively mild level indicates that these provinces may be areas where the GVN has created or enjoys relative advantages in its effort at pacification.

(U) There are additional indicators for which the guerrilla cluster scores higher than the main force typology but not the hybrid. They include the RF/PF strength levels, the percent friendly KIA on RF/PF operations, and the VCI levels.

(U) Interestingly, the number of friendly large operations in the guerrilla provinces is 20 per province month¹⁰ while the hybrid provinces average 27, and the main force provinces only 19. But as remarked above, the casualty statistics overall are considerably lower in these provinces than in the main force or the hybrid cluster. The total war deaths variable has a country-wide mean of 266. In comparison, the guerrilla war provinces have a mean of 178, which is 33% lower than the average. This is particularly striking in comparison with main force casualty rates which average 771, and the hybrid war type provinces which have a mean of 748.

(U) In summary, the guerrilla war provinces are characterized by the following distinctions:

- . High VC combat unit percent of enemy strength.
- . High RF/PF personnel strength.
- . High percentages of small operations by the RF/PF
- . Low levels of enemy combat strength, particularly NVA units.
- . High VCI levels.
- . Low levels of casualties, but high RF/PF percentages of friendly deaths.

¹⁰

(U) A province month is the basic partitioning of the data used in this analysis. One might partition the war for analysis by using quarterly observations aggregated to the MR level, annual observations of country-wide aggregations, monthly observations of RVNAF unit data, etc. The studies reported here used monthly province data.

"Others"

(U) The most prominent characteristic of the "other" provinces has been found to be the appearance of more diversity within the group itself than between it and the three major war types. The anomaly presented by this remaining group of provinces is that they fail to fall into any of the three distinctive war types.

The provinces most representative of the group of "others" are:

Phu Bon	-	MR II	Hau Nghia	-	MR III
Ninh Thuan	-	MR II	Bien Hoa	-	MR III
Tuyen Duc	-	MR II	Phuoc Tuy	-	MR III
Lam Dong	-	MR II	Go Cong	-	MR IV
Binh Thuan	-	MR II	Kien Tuong	-	MR IV
Binh Tuy	-	MR III	Sa Dec	-	MR IV
Long Khanh	-	MR III			

These "other" provinces average a population of only 200,000 and for the most part are located along the interior of South Vietnam away from the coastal and border areas.

(U) They do have a distinctiveness, but their characterization lies in their overall lack of military strength, deployment and activity. The average enemy combat strength in these provinces is only 42% of the countrywide mean. Friendly combat strength, on the other hand, is 63%. The higher friendly troop strength levels, nonetheless, do not indicate a large degree of pacification in these provinces. There is a diversity of pacification scores ranging from 38% (Hau Nghia) to 94% (Ninh Thuan).¹¹

(U) The fact that the combat level of investments by both sides are relatively negligible suggests that strenuous combat effort may be either untimely or misplaced or that these areas are just so constituted that they do not draw priority investments from either side.

(U) Interestingly, the "other" provinces score highest percentile averages on three variables when compared to the three major war types on a countrywide basis: a 34% friendly KIA on RF/PF operations, 19% enemy incidents

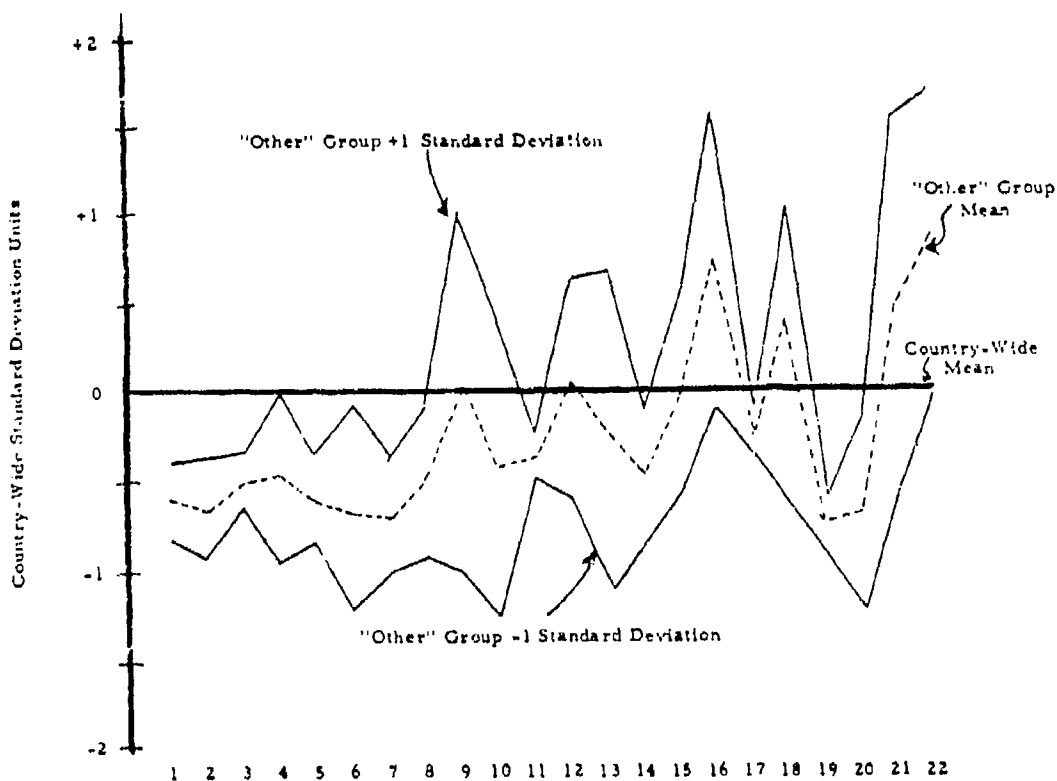
¹¹ (U) These pacification scores were recorded in the Hamlet Evaluation System, December, 1970.

against civilian targets, and 16% RF/PF deaths of total friendly deaths. These figures must be viewed within the perspective of the fact that total friendly KIA in the "other" provinces is 44% of the total friendly casualties accounted for on a countrywide level; the total enemy incidents are 52% of the countrywide level; the RF/PF levels are 62% of the levels on a countrywide basis. However, the scores have significance to the extent that they allow further insight into the criteria which gives these provinces the "other" classification.

(U) Figure IV-3 demonstrates the diversity that makes up the relationship of the "other" provinces to one another. For 11 of the 22 variables the standard deviation is so broad that the group cannot effectively be distinguished from the rest of the country. For those variables in which some distinguishing characteristics can be identified, the means are below the countrywide average. These include all of the casualty data and the strength data. The diversity indicates that this low level activity is not only low level, but low level and unpatterned.

(U) FIGURE IV-3.

PROFILE OF "OTHER" GROUP



Summary

(U) As was shown in the foregoing discussions, the three different war types are defined by distinct characteristics of their profiles on different variables. These distinct profiles are summarized in Table IV-1.

(U) TABLE IV-1.

PROVINCE CLUSTER CHARACTERISTICS SUMMARY

<u>Indicator</u>	<u>Main Force</u>	<u>Hybrid</u>	<u>Guerrilla</u>
War Deaths	High	High	Low
Total Enemy Personnel Strength	High	High	Low
NVA Combat Unit Personnel Strength	High	Average	Low
VC Percent of Enemy Combat Unit Strength	Low	Average	High
VC Small Unit Local Strength	Average	High	Average
Total VCI Strength	Low	High	High
Total Friendly Personnel Strength	Average	High	Average
RF/PF Personnel Strength	Low	High	Average
Total Enemy Initiated Incidents	High	High	Low
Friendly Large Operations	Average	High	Average
Friendly Small Operations	Low	High	Low
RF/PF Percent of Friendly Deaths	Low	Low	High

(U) Reference to Table IV-1 indicates the degree to which the hybrid war cluster has dominated the magnitudes of the indicators of the war types. The only low rating for hybrid war in the summary table was the RF/PF percent

of friendly deaths variable. Main force and guerrilla war, on the other hand, show a great deal more diversity in comparison. Main force war is very high in the enemy NVA strength, enemy incidents, and total war death variables. This war type is the scene of a war of attrition, with particularly heavy fighting in lightly-populated areas. These indicators are also absorbed in the hybrid category. However, the hybrid war, in addition, assimilates characteristics of the guerrilla war which are of low consequence to the main force environment: high percentages of local troop strengths, lower levels of conflicts, and more highly populated surroundings.

(U) Our analysis with U.S. data has provided a more refined conception of the three types of war. The U.S. data input has particularly allocated the hybrid classification a strengthened designation as a war combining portions of both local and main force characteristics. In essence, the hybrid war most realistically denotes those areas where combat is heavy, casualties are high, all troop levels are utilized, and population is substantial.

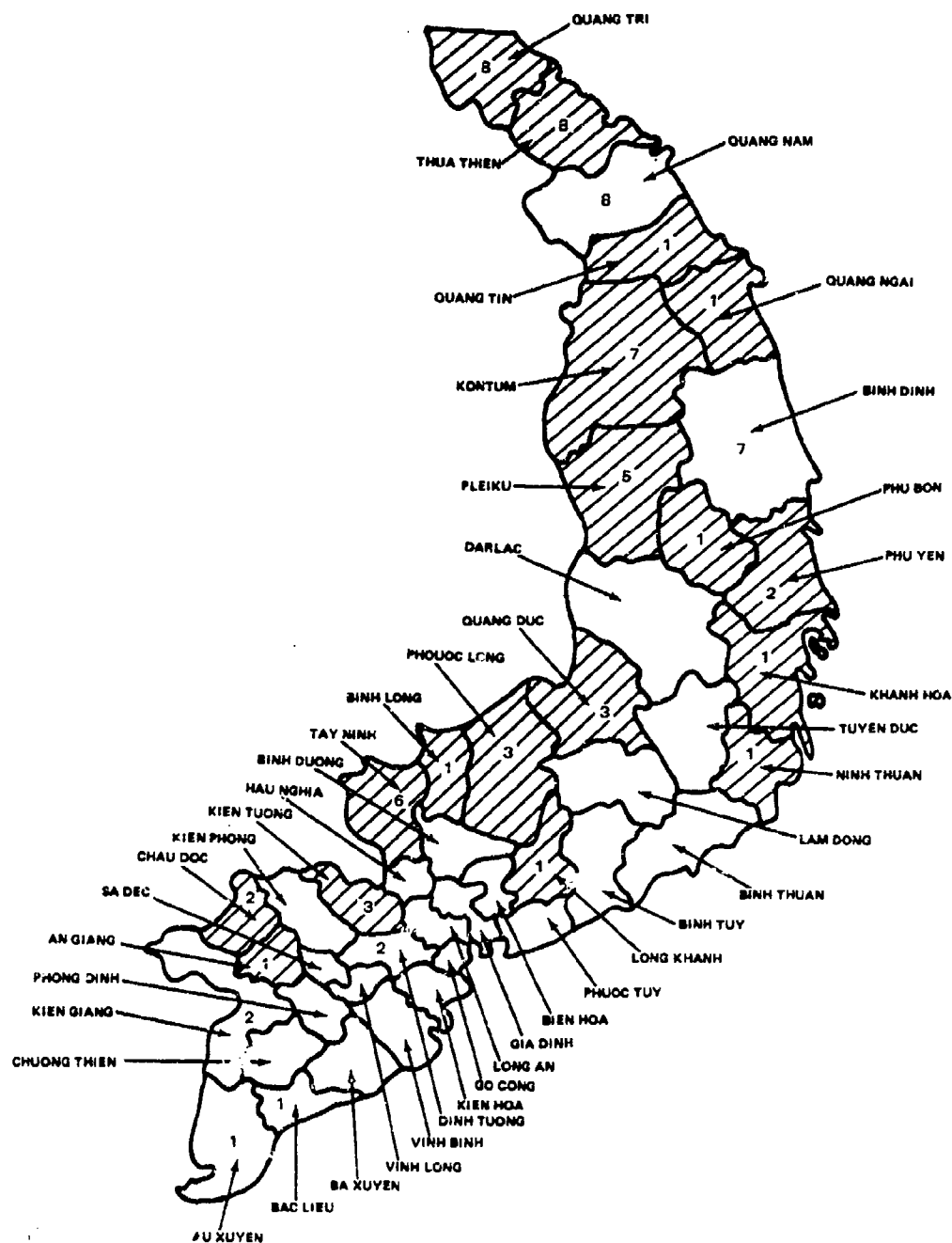
(U) These findings are summarized by the following maps which give the locations of provinces belonging to each of the three war types in one or more periods. The number in the center of each province indicates the number of times the province loaded in the war type portrayed. Numbers in provinces which are not shaded indicate the number of periods in which the province was associated with that war type but also had a stronger loading on another war type.

(U) The final map gives an indication of the strongest war type relationship of the provinces which loaded five times or more for the war type depicted. If the province had several loadings for two separate war types, the stronger loadings are the ones illustrated.

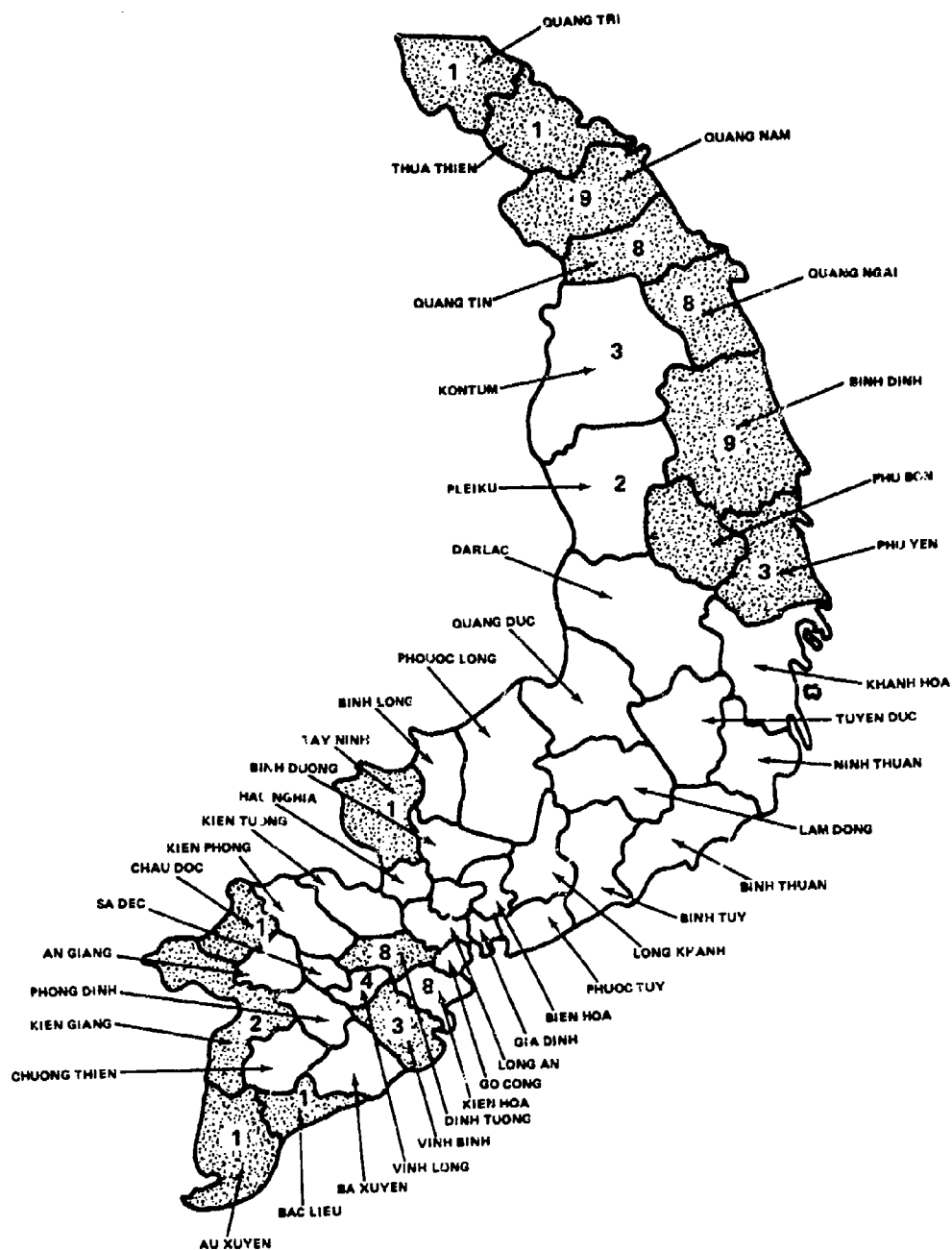
*For example, consider the loadings for Quang Tri, Thua Thien, and Quang Nam in the following table extracted from Table IV-2:

	April-Sept 1967	Oct 67-Mar 68	April-Sept 1968	Oct 68-Mar 69	April-Sept 1969	Oct 69-Mar 70	April-Sept 1970	Oct 70-Mar 71	April-Sept 1971
	Main Force Hybrid Guerrilla	Main Force Hybrid Guerrilla	Main Force Hybrid Guerrilla	Main Force Hybrid Guerrilla	Main Force Hybrid Guerrilla	Main Force Hybrid Guerrilla	Main Force Hybrid Guerrilla	Main Force Hybrid Guerrilla	Main Force Hybrid Guerrilla
Quang Tri	.22 .14	.11	.19	.19 .10	.14 .19	.27 .22	.43 .21	.25 .15	.25 .23
Thua Thien	.21 .26	.20 .20	.18 .18	.18 .10	.19 .19	.23 .22	.37 .23	10	.10
Quang Nam	.18 .24	.16 .21	.15 .17	.16 .20	.16 .16	.12 .12	.28	.15 .26	.21 .23

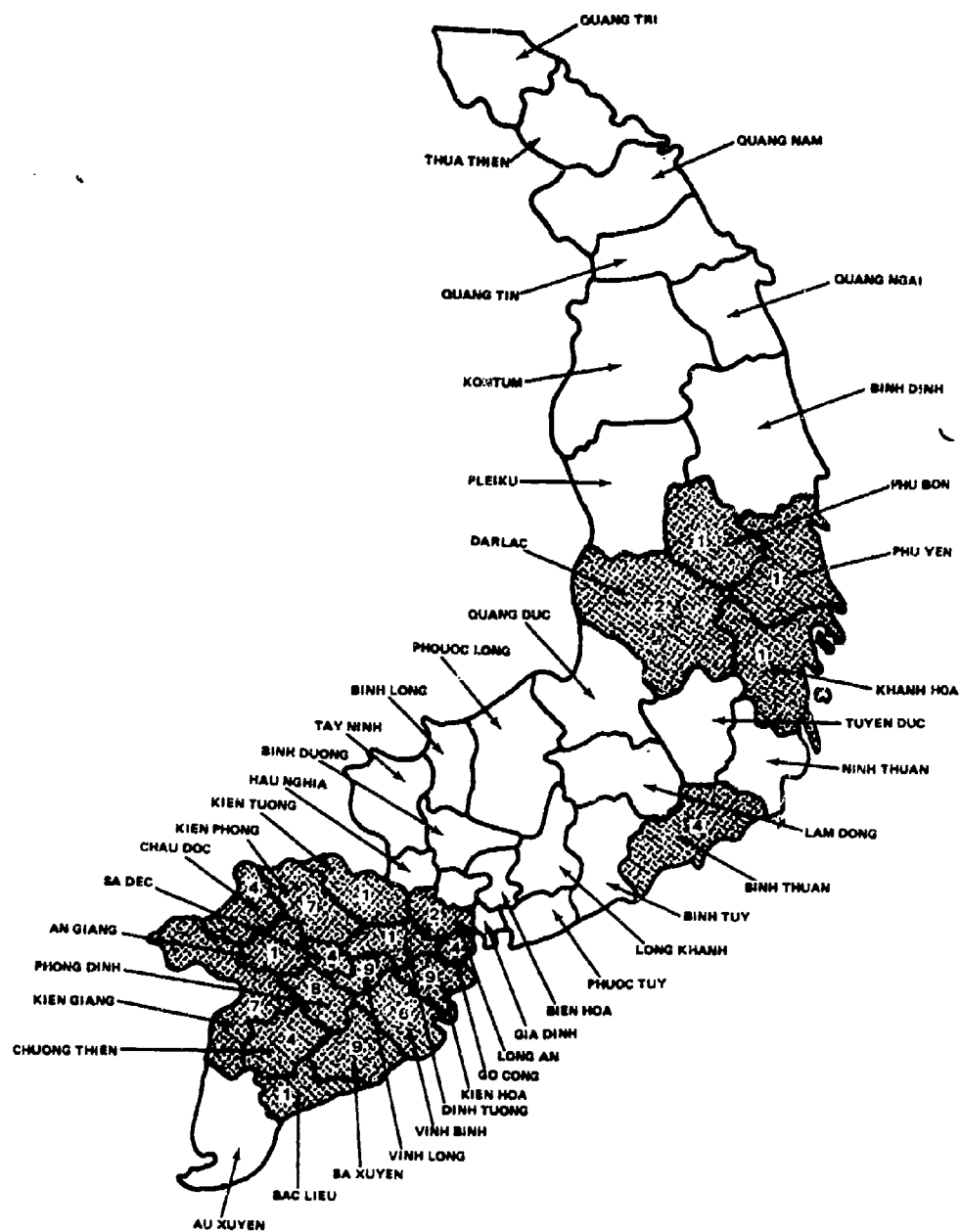
Both Quang Tri and Thua Thien have their strongest association (loading) with main force war in 8 of 9 periods and are therefore shown as shaded with an "8" on the main force maps. Quang Nam also has 8 of 9 periods showing an association with main force, but it also loaded higher on hybrids in each of these periods. Thus it is shaded on the hybrid map and not shaded on the main force map where only the "8" is shown.



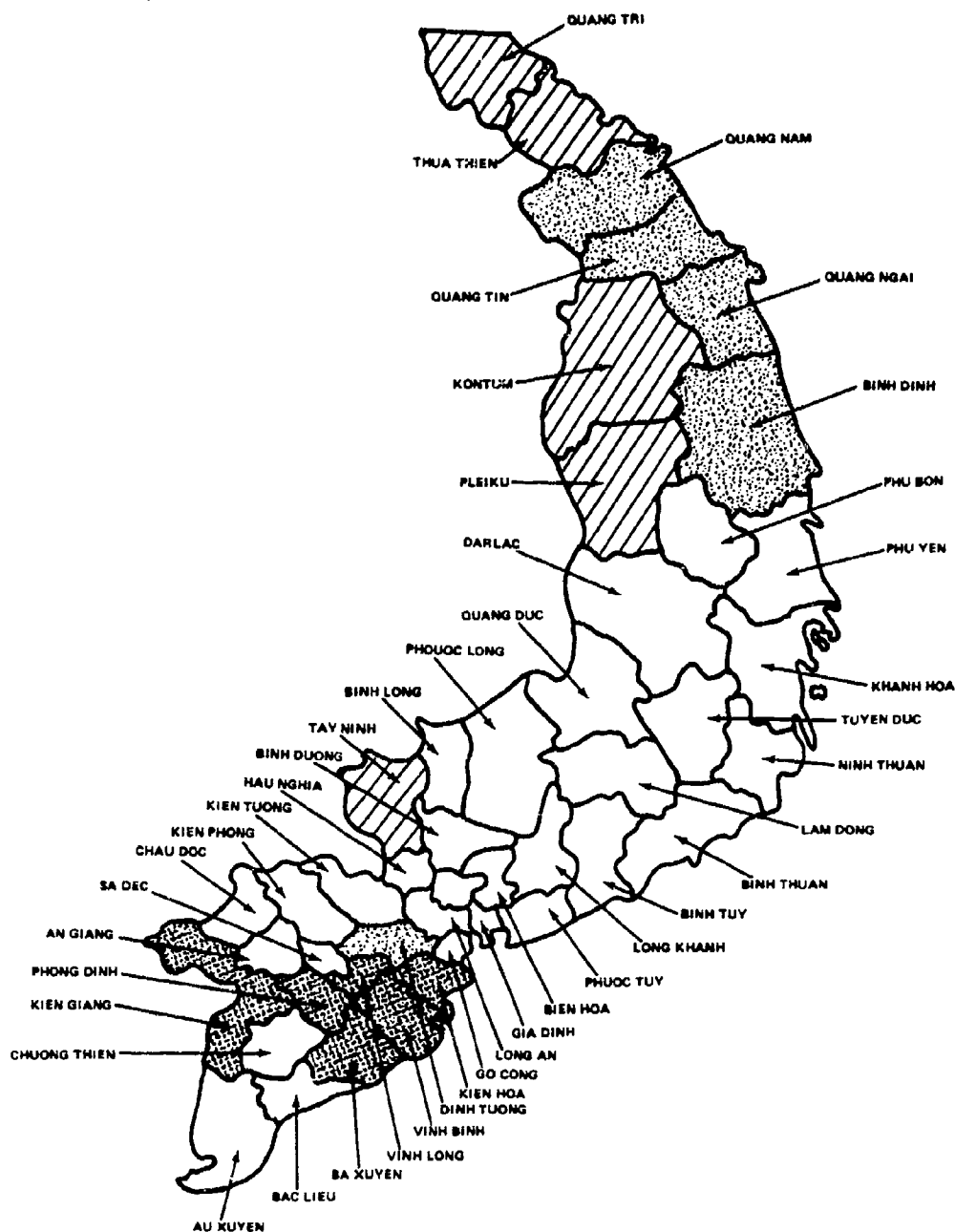
(U) Main Force War



(U) Hybrid War



(U) Guerrilla War



(U) Provinces with Consistent War Type Associations, 1967-71

IV-2 Changing Patterns of the War

(U) The degree of association of each province with the three types of war is shown in Table IV-2. Immediately following is Table IV-3 which is a reproduction of the province clusters as analyzed in our prior study (without U.S. data). The tables consist of "loadings"¹² which identify the degree to which each province is linked with each of the war type clusters. Only those loadings which were .10 or above are represented in these tables. Those loadings which fall between .10 and .20 can be visually identified as having only weak linkages with the war categories under which they fall. A loading above .20, on the other hand, is a stronger classification, and indicates the province shares a large number of characteristics with the war type. The provinces with only weak loadings do have identifiable similarities with the war type, but they are not as numerous or as pronounced as is the case with a strong score.¹³ The absence of a designator reflects the fact that the province does not show a pattern of characteristics which can be identified with any type of activity for that particular time period.

(U) For example, in Table IV-2 (the province clusters with U.S. data), Kontum has no designators in time periods 1 and 2. This gives it an "other war" province classification. However, as mentioned in the "Patterns of the Vietnam War" section of this paper, it does not suggest that there is no war activity going on in Kontum, but rather that the activity does not evidence characteristics similar to those provinces which have clustered into the same war types. In time period 3 Kontum has a .14 loading in the main force war category indicating that this province is experiencing activities resembling those occurring in other main force provinces, such as Quang Tri (.19) and Thua Thien (.18). In time period 4, Kontum achieves a "strong" rating of .22 in the main force category which indicates that it is sharing a larger number of characteristics with other provinces in the main force war cluster. In time periods 4 through 9, Kontum remains an example of a "strong" main force war province; in addition, it has weak hybrid loadings for time periods 5, 7 and 9, evidencing some local war activity analogous to the hybrid war province cluster.

¹²(U) "Loadings" are measures of the strength of association between a province and a cluster. Mathematically speaking, they are the projection of the province (vector) on the axis (vector) which describes the cluster.

¹³(U) It should be understood that oblique rather than orthogonal rotations were implemented for this factor analysis. This means that the square of the loadings does not equal the proportion of explained variance as in the case of orthogonal rotations. In addition, the type of oblique rotation used in this analysis lead to generally very low loadings throughout the time periods. Therefore, a loading of only .10 has some significance in showing the association of a province with a cluster. See Appendix B for further explanation.

(U) TABLE IV-2.

PATTERNS OF THE WAR BY PROVINCE CLUSTERS - WITH U.S. DATA

Time Period	1		2		3		4		5		6		7		8		9		
	April-Sept 1967	Oct 67-Mar 68	April-Sept 1968	Oct 68-Mar 69	April-Sept 1969	Oct 69-Mar 70	April-Sept 1970	Oct 70-Mar 71	April-Sept 1971	Main Force	Hybrid	Guerrilla	Main Force	Hybrid	Guerrilla	Main Force	Hybrid	Guerrilla	
Military Region I	Main Force																		
	Hybrid																		
	Guerrilla																		
	.22 .17	.11	.19	.19 .10	.19 .19	.27 .22	.43 .21	.25 .15	.25 .23	.25 .15	.25 .15	.25 .15	.25 .15	.25 .15	.25 .15	.25 .15	.25 .15	.25 .15	.25 .15
	.21 .26	.20 .20	.18 .16	.18 .10	.19 .15	.23 .22	.37 .23	.10	.10	.10	.10	.10	.10	.10	.10	.10	.10	.10	.10
	.18 .24	.16 .21	.15 .17	.18 .20	.16 .16	.12 .12	.28	.15 .26	.21 .23	.15 .26	.15 .26	.28	.15 .26	.21 .23	.15 .26	.21 .23	.15 .26	.21 .23	.15 .26
Military Region II	Main Force																		
	Hybrid																		
	Guerrilla																		
	.24 .28	.20 .31	.23	.20	.18 .27	.21 .30	.29 .31	.21 .18	.12 .23	.21 .18	.21 .18	.29 .31	.21 .18	.12 .23	.21 .18	.12 .23	.21 .18	.12 .23	.21 .18
	.21 .26	.19 .33	.24	.20 .25	.21 .30	.20 .29	.19 .35	.25 .24	.16 .19	.25 .24	.25 .24	.19 .35	.25 .24	.16 .19	.25 .24	.16 .19	.25 .24	.16 .19	.25 .24
	.14	.14 .29	.10 .26	.22	.21 .19	.20	.43 .13	.40	.24 .19	.40	.40	.43 .13	.40	.24 .19	.40	.40	.24 .19	.40	.40
Military Region III	Main Force																		
	Hybrid																		
	Guerrilla																		
	.15 .14	.15 .20	.12	.12	.12 .11	.19 .21	.20 .36	.13 .24	.15	.13 .24	.13 .24	.20 .36	.13 .24	.15	.13 .24	.13 .24	.20 .36	.15	.13 .24
	.12	.12	.12	.12	.12 .11	.19	.10	.11	.12	.12	.12	.10	.12	.12	.12	.12	.10	.12	.12
	.13	.13	.13	.13	.13	.13	.13	.13	.13	.13	.13	.13	.13	.13	.13	.13	.13	.13	.13

Time Period	Military Region III						Military Region IV					
	1	2	3	4	5	6	7	8	9	10	11	12
April-Sept 1967	Oct 67-Mar 68	April-Sept 1968	Oct 68-Mar 69	April-Sept 1969	Oct 69-Mar 70	April-Sept 1970	Oct 70-Mar 71	April-Sept 1971				
	Main Force	Hybrid	Guerrilla	Main Force	Hybrid	Guerrilla	Main Force	Hybrid	Main Force	Hybrid	Guerrilla	Hybrid
Tay Ninh												
Hau Nghia												
Bien Hoa												
Phuoc Tuy												
Long An												
Gia Dinh												
Go Cong												
Kien Tuong												
Kien Phong												
Dinh Tuong												
Kien Hoa												
Vinh Binh												
Vinh Long												
An Giang												
Kien Giang												
Chuong Tien												
Phong Dinh												
Ba Xuyen												
An Xuyen												
Bac Lieu												
Chau Doc												
Sa Dec												

(U) TABLE IV-3.

PATTERNS OF THE WAR BY PROVINCE CLUSTERS - WITHOUT U.S. DATA

	April-Sept. 1967			Oct. 1967-Mar. 1968			April-Sept. 1968			Oct. 1968-Mar. 1969			April-Sept. 1969			Oct. 1969-Mar. 1970			April-Sept. 1970		
	Main Force	Hybrid	Guerrilla	Main Force	Hybrid	Guerrilla	Main Force	Hybrid	Guerrilla	Main Force	Hybrid	Guerrilla	Main Force	Hybrid	Guerrilla	Main Force	Hybrid	Guerrilla	Main Force	Hybrid	Guerrilla
Quang Tri	.30			.15			.12			.13	.11		.17	.15		.29	.16		.39	.18	
Thua Thien	.25	.21		.21	.18		.13				.11		.19	.19		.25	.23		.39	.25	
Quang Nam	.13	.19		.20	.14		.11	.11		.14	.19		.11	.19		.14	.22		.19	.25	
Quang Tin	.23	.17		.19	.12		.19	.13		.14	.21		.12	.26	.11	.13	.30	.14	.31	.27	
Quang Ngai	.18	.21		.25			.24	.12		.16	.18		.20	.27		.21	.29		.19	.39	
Ninh Nam	.27						.10			.15			.15	.10		.19			.37		
Binh Dinh	.22	.14		.10	.32	.17	.32	.17		.23	.10		.15	.30	.11	.16	.38	.14	.16	.40	.17
Phu Yen	.19			.23						.11											
Phu Binh													.13	.20				.11			.20
Phu Yen	.18	.11			.19	.10	.16						.11								
Dak Nang													.14	.15		.18	.12				.19
Kien Hoa				.12									.11						.15		
Ninh Thuan																					
Tuyen Duc										.14						.13					
Quang Duc																					
Lam Dong																					
Binh Thuan		.22			.25						.17			.14				.13			.20
Binh Tay																					
Long Khanh																					
Phước Long				.11			.11			.11						.16			.15		
Binh Long	.10			.14			.11														
Binh Duong		.14					.11														

	April-Sept. 1967		Oct. 1967-Mar. 1968		April-Sept. 1968		Oct. 1968-Mar. 1969		April-Sept. 1969		Oct. 1969-Mar. 1970		April-Sept. 1970	
	Main Force	Hybrid Guerrilla	Main Force	Hybrid Guerrilla	Main Force	Hybrid Guerrilla	Main Force	Hybrid Guerrilla	Main Force	Hybrid Guerrilla	Main Force	Hybrid Guerrilla	Main Force	Hybrid Guerrilla
Tay Ninh	.11													
Hau Nghia									.21		.15			.19
Bien Hoa	.18													
Phuoc Tuy														
Long An							.13	.14						.13
Gia Dinh	.10	.17	.12				.11			.10				
Con Go														
Nien Tuong	.10		.13		.17		.19		.13		.21			
Kien Thuan					.22	.19	.18	.17	.6	.21	.14		.25	.13
Ninh Loc	.28		.20	.12										
Ninh Loc 2	.12	.21	.14	.28	.21	.21	.15	.19	.14	.15	.16	.18	.15	.12
Kien Hoa	.10	.17	.12	.25	.10	.15	.15	.10	.14	.18	.16	.15		.18
Nghi Binh			.12				.20	.16	.10	.17	.13	.26	.20	.41
Vinh Long	.18		.12	.23	.16	.25	.12				.11			
An Giang					.14						.14			.6
Kien Giang			.14		.13	.21	.17							
Chuong Thuan														
Phong Dinh	.14						.17		.15		.20			
Ba Xuyen	.21		.14	.10	.13		.16		.23		.25			.5
An Phuyen													.21	
Bac Lieu														
Chau Doc	.18						.12				.18	.21	.16	.21
Da Duc											.12			

(U) Table IV- 4 provides a more concise perspective of the degree to which each province identifies with a war type cluster by replacing the loadings with either an "S" to indicate a strong degree of association or a "W" to indicate a weak degree of association.¹⁴ The greater number of strong designators (main force and hybrid) in the MR I provinces is indicative of the more defined, homogeneous composition of activities going on in this area of Vietnam. On the other hand, the number of provinces associated with a strong guerrilla war pattern can be seen to be gradually increasing (primarily in Military Region IV) over time, e.g. Kien Hoa, Vinh Long, Ba Xuyen.

(U) A preliminary comparison of the results of our factor analysis with U.S. data (Table IV- 2) with the results of our previous analysis without U.S. data (Table IV- 3) offers four immediate observations:

1. There is a greater number of province associations with the theoretical main force war pattern, and a fewer number with the guerrilla war patterns in the study with U.S. data;
2. All aspects of guerrilla war loadings have been excluded from MR I in using U.S. data;
3. There is a stronger indication of regional groupings according to war type in using U.S. data;
4. Loadings for all three war types by any one province (as sometimes occurred in our previous study) have been eliminated; e.g., Table IV- 3 Quang Tin province, time periods 5 and 6.

(U) The first observation is summed up in the following chart which compares the total number of provinces loading for each war type category in seven time periods for the first study with the current study.

Time Periods	Province Loadings Greater than .10 (Without U.S. Data)								(With U.S. Data)							
	1	2	3	4	5	6	7	Total	1	2	3	4	5	6	7	Total
Main Force	9	8	6	8	11	12	12	66	8	8	7	16	10	14	13	70
Hybrid	10	12	10	12	14	12	10	80	9	12	11	12	13	12	12	81
Guerrilla	13	12	12	13	13	14	13	90	10	12	11	11	14	10	12	80

¹⁴(U) Those provinces with no ties to any cluster during the entire time period were not included.

(U) TABLE IV-4.

"WEAK" AND "STRONG" SUMMARY OF PROVINCE CLUSTERS

Time Periods		1	2	3	4	5	6	7	8	9
		April-Sept 1967	Oct 67-Mar 68	April-Sept 1968	Oct 68-Mar 69	April-Sept 1969	Oct 69-Mar 70	April-Sept 1970	Oct 70-Mar 71	April-Sept 1971
		Main Force	Hybrid	Guerrilla	Main Force	Hybrid	Guerrilla	Main Force	Hybrid	Guerrilla
Military Region I	Quang Tri	W	W		W	W		W	W	
	Thua Thien	W	W	W	W	W	W	W	W	W
	Quang Nam	W	W	W	W	W	W	W	W	W
	Quang Tin	W	W	W	W	W	W	W	W	W
	Quang Ngai	W	W	W	W	W	W	W	W	W
Military Region II	Kontum			W	W	W	W	W	W	W
	Binh Dinh	W	W	W	W	W	W	W	W	W
	Plieku	W				W			W	W
	Phu Bon				W					
	Phu Yen	W	W	W	W	W				
	Darlac						W			W
	Ninh Thuan							W		
Military Region III	Binh Thuan		W	W		W		W		W
	Long Khanh				W					
	Phuoc Long		W				W	W		
	Binh Long		W							
	Tay Ninh			W	W	W	W	W	W	W
Military Region IV	Long An				W	W	W	W	W	W
	Gia Dinh							W		
	Go Cong			W		W				
	Kien Tuong						W	W		
	Kien Phong		W	W	W	W	W	W	W	W
	Dinh Tuong	W	W	W	W	W	W	W	W	W
	Kien Hoa	W	W	W	W	W	W	W	W	W
	Vinh Binh		W	W	W	W	W	W	W	W
	Vinh Long		W	W	W	W	W	W	W	W
	An Giang	W			W					
	Kien Giang		W	W	W	W	W	W	W	W
	Chuong Tien				W	W	W	W	W	W
	Phong Dinh		W	W	W	W	W	W	W	W
	Ba Xuyen		W	W	W	W	W	W	W	W
	An Xuyen		W	W	W	W	W	W	W	W
	Bac Lieu			W	W			W		W
	Chau Doc	W		W	W	W	W	W	W	W
	So Duc		W				W	W		

(U) This chart indicates that the overall patterns of war have become more representative of main force war, but less of guerrilla war, while having little effect on the total number of hybrid loadings. That is, 70 provinces load main force with U.S. data as compared to only 66 provinces without U.S. data. In the guerrilla war category, only 80 provinces have a strong loading with U.S. data as compared to 90 provinces in the study without U.S. data. These findings are not unexpected in view of the major mission for U.S. forces being that of combat responsibility in the areas of major main force threat.

(U) The second observation follows from the first. The majority of U.S. troops were located in MR I throughout the war. Therefore, that the local war indicators were overwhelmed by the addition of main force designators in MR I is not surprising.

(U) The greater tendency for the war types to show a regional pattern is apparent from the following chart which indicates the number of provinces in each region which load .10 or above in the war types (including only the 7 time periods which are applicable):

Provinces Loading Greater than .10 by Military Region

	<u>Without U.S. Data</u>	<u>With U.S. Data</u>
MR I	66	64
MR II	55	42
MR III	22	15
MR IV	93	110

(U) The only military region which increased in the number of war type designators is MR IV, which is the southern, most populous area in Vietnam. However, if one took into account only the "strong" factor loadings, one would find that there are 13 more strong loadings in MR I, 9 fewer strong loadings in MR IV, and approximately the same number in MR II and III. The conclusion one can draw from these findings is that not only were the U.S. forces deployed according to presence of a main force threat as previously stated, but they also served to clarify the pattern of war for many provinces by the inclusion of U.S. data. Therefore, even the guerrilla war province cluster has been affected to the extent that it has become a more distinct entity. In our previous study, large numbers of either VC or NVA troops could have made up descriptors indicative of the main force war cluster. Now with U.S. data included, strong VC troop strength designates in most cases only a hybrid or guerrilla war fighting situation, thereby giving more definable structure to the guerrilla war pattern discoverable in the MR IV provinces.

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(U) The final observation regards the elimination of loadings for all three war types, by any one province. This effect coincides in part to our second observation. The addition of U.S. forces to the data base has increased the formerly low score for level of friendly regular forces which is characteristic of guerrilla war provinces. Therefore, a province such as Binh Dinh has received numerical increases in regular forces to the effect of overwhelming the local war characteristics of this area.

(U) These observations plus the basic patterns of activity discussed in the "Patterns of War" section of this part of the study identify the most stable characteristics of the structure of the war across the five years analyzed. The rest of this section will describe the clusters as they were found in each of the six month time periods. Much of this examination will center around the province loadings as found in Table IV- 2.

Spring/Summer 1967 (Time Period 1) April-September 1967

(U) Primary characteristics of time period 1 in the first province profile analysis paper were the following:

- . The most intense war effort was being exerted in MR I, consisting of a combination of main force and hybrid war.
- . There were large numbers of regular forces and above average RF/PF troops deployed in MR I.
- . MR II reflects a situation of heavy troop concentrations but very little contact between friendly and enemy forces.
- . In short, the Spring/Summer 1967 time period had the basic characteristics of each war type and the geographic distribution which became generally typical of all the six month periods in the four years under consideration.

Province Clusters with U.S. Data (Time Period 1)

(U) The inclusion of U.S. data effected a redistribution of all province loadings in this time period. Taken on a region by region basis, the overall results have been to strengthen the loadings in MR I and to weaken those from the other three regions. This follows logically from the fact that, although U.S. troop strength was still on the uprise, its greatest numerical presence was being felt in MR I.

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(U) An interesting aspect of the MR I loadings, however, is that the hybrid war type averages highest for most friendly regular, and enemy strength and activity variables. In fact, in MR I every province but Quang Tri loads more heavily in the hybrid war category than in the main force (see Table IV -2 Military Region I, time period 1). The following chart further illustrates this concept by giving the means for the raw data for the 22 variables of the provinces which loaded in each of theoretical war type categories in time period 1. The war type with the highest mean is underscored for each variable.

(C) Chart 1.

Monthly Variable Means in Each War Category - Time Period 1

Variables	Main Force Mean	Hybrid Mean	Guerrilla Mean	Other Mean	Countrywide Mean
1 Friendly Deaths-Friendly Initiated Actions	100	129	22	15	43
2 Total Friendly Deaths	130	180	41	27	64
3 Total War Deaths	538	829	113	76	241
4 Enemy Initiated Incidents	42	146	52	32	51
5 Enemy Personnel Strength	10847	10449	4327	2642	5414
6 Friendly Personnel Strength	10032	16066	7916	6305	8016
7 Total VCI Strength	1661	4509	3661	1211	2099
8 % Friendly Regular KIA-Large Operations	28	39	3	18	20
9 Friendly Regular % of Total Deaths	8	10	3	10	9
10 % Enemy Attacks Targeting Military	55	75	77	61	66
11 NVA Unit Strength	7086	2235	0	289	1363
12 VC % of Enemy Strength	9	52	89	64	61
13 Regular Unit % of Friendly Strength	46	52	16	32	34
14 Friendly Large Operations	11	21	11	7	10
15 Regular Unit % KIA-Small Operations	5	13	5	13	10
16 % Friendly Deaths-RF/PF Operations	9	11	45	23	23
17 Small Unit Operations with Contact	14	182	16	11	35
18 RF/PF % of Small Unit Operations	6	6	23	14	13
19 VC Local Unit Strength	3345	6356	3667	1551	3047
20 RF/PF Strength	4674	7719	6570	3411	4503
21 % Enemy Incidents Against Civilians	4	8	1	9	5
22 RF/PF % Total Deaths	9	4	17	13	11

Provinces loading
strongest in the
major war types.

Quang Tri	Thua Tien	Kien Hoa
Pleiku	Quang Nam	Vinh Binh
Phu Yen	Quang Tin	Kien Giang
An Giang	Quang Ngai	Phong Dinh
	Binh Dinh	Ba Xuyen
	Dinh Tuong	

(U) The dominant characteristics of the hybrid war cluster are apparent. For example, the hybrid war provinces now represent areas in which the greatest number of deaths are occurring, i. e., friendly deaths on friendly initiated actions, total friendly deaths, total war deaths, percent friendly regular unit deaths on small unit operations, and regular unit percent of total deaths. In conjunction, total enemy incidents have now become most indicative

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of the hybrid war category. Also, total friendly military strength and ARVN/VNMC percent of GVN strength is highest in the hybrid war provinces.

(U) These are variables which, in our previous study, had been more represented in the main force war cluster of provinces. To explain the change-over, it is necessary to revert back to our earlier discussion on the redefined boundaries of the war type clusters. Due to inclusion of U.S. data, the main force war category has acquired a more rigid structure, thereby excluding several candidate provinces. The hybrid war cluster absorbed these provinces and, in turn, also received their descriptive aspects. Being as more provinces have characteristics of both regular and local force variables, only those with a clear majority of regular force strength now fall into the main force grouping.

(U) The local aspects of the war which give the hybrid cluster its "mixed" war characteristics of intense combat carried out by small or local units are variables such as heavy amounts of Viet Cong infrastructure, the majority of small unit operations with contact being carried on, plus most interestingly, the highest levels of VC local unit strength and RF/PF strength. These last variables indicate that although the VC constitute the highest percentage of enemy strength in the guerrilla war province cluster, the total numbers of VC in the hybrid war provinces are actually higher.

(U) The only provinces loading on main force war outside of MR I were Pleiku, Phu Yen and An Giang. Pleiku was also main force in our last analysis, reflecting its 68% friendly regular unit combat strength, as well as high NVA combat strength. In addition, total enemy personnel strength is at approximately 9800 for this time period. High figures for a combination of these three variables relates strongly to a main force situation in this time period.

(U) Phu Yen is very indicative of the U.S. /main force regular unit data, switching from a primarily hybrid loading with a weak guerrilla loading in our last study, to a primarily main force loading with a weaker hybrid loading in this study.

(U) An Giang is the only province loading main force in military region IV and it is weak at that (.10). An Giang is geographically small but one of the more populous Vietnamese provinces. A look at its raw data indicates that there is not so much a main force war being carried on as existence of a weak pattern of variables which vaguely relates to the main force cluster. An Giang's loadings on Table IV- 2 over nine time periods indicates that it is generally and more accurately in the "other" war category.

(U) Referral back to chart 1 shows that two variables are higher in the main force war category than the others in this time period: total enemy military strength and NVA unit strength. This depicts again the change which has occurred within the structure of our clusters: i. e., that friendly regular troops have been combined with both VC and NVA forces to indicate hybrid activity, while NVA troop presence has become the primary characteristic of the main force war patterns.

(U) The guerrilla war loadings have been eliminated from MR II and MR III except for Binh Thuan with the addition of the U.S. data. Also, every MR IV guerrilla war loading is weaker, with the exception of Kien Phong and Phong Dinh. Two new, albeit very weak, guerrilla war loadings have occurred: Kien Tuong and Kien Giang. Chart 1 shows that the percentage of enemy attacks against military targets is higher (77%) in the guerrilla war province cluster than either hybrid or main force. In addition, the guerrilla provinces average a high of 89% VC enemy combat strength relative to the other war clusters, as well as highest percentage of RF/PF small unit operations (23%) and RF/PF deaths (17%).

(U) The most interesting overall aspect of our revised province profiling in time period 1 is the number of weaker loadings in the southern half of Vietnam, plus the number of provinces falling into the rather undistinguished "other" category, viz., Kontum, Tay Ninh, Bien Hoa, Gia Dinh. Our continuing research, however, is leading to new indicators of the provinces which are unable to cluster within a defined pattern. The most immediately recognizable characteristic of the "other" provinces (at least, in this time period) is that their mean regular unit percent of total deaths (10%) is not only above the countrywide mean (9%), but it is on a par with the hybrid provinces (10%), which are the highest throughout Vietnam. The mean percent of friendly deaths on small unit operations (13%) portrays exactly the same phenomenon. Thus, there is a descriptive action going on in these provinces, but it is evidently the result of friendly regular forces confronting both VC local guerrilla and main force units. NVA units, however, are present in all war categories; therefore, this particular combination of combat activity fell into our formerly nameless "other" category. Concomitant with this finding is the overall low levels of troop strengths in the "other" provinces. (See chart 1, variables 5, 6, 19 and 20.) The "other" war province means for friendly and enemy strengths trail behind every war category.

(U) Nonetheless, an interesting fact derived from examination of the "other" war category is that variable 21, percentage of enemy incidents against civilians, a variable of elusive qualities, is higher overall in these provinces. This information contributes significantly to our effort to better define the "others."

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The indicators of these provinces are beginning to assert themselves, not by their lack of characteristics, but by their lack of activity common to the patterns of any of the three major war types defined by the theoretical basis for this analysis.

Winter 1967-1968 (Time Period 2) October 1967-March 1968

(U) Primary characteristics of period 2 in the first province profile analysis paper were the following:

- . The TET offensive, occurring in this time period was characterized by:
 - :activity which followed the pre-established patterns only in those provinces where strong patterns existed during time period 1.
 - :heavy fighting in those provinces which had not established patterns, but with distributions and activities which were not characteristic of the major thrusts of the war.
- . Provinces falling into one of the three war type categories were five times as effective as in the unstructured "other" provinces in terms of the kill ratio.
- . Kontum and Tay Ninh were major exceptions to the general trend of activity. Kontum dropped from the main force group for the only time during the four years under consideration. Tay Ninh dropped from the group not to reappear until 1970.

Province Cluster with U.S. Data (Time Period 2)

(U) As observed in our previous study, the TET offensive resulted in unusual distributions of resources and/or activities. Chart 2 summarizes the distribution of activities and resources applicable to each war type: (the war type with the highest mean is underscored)

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(C) Chart 2.

Monthly Variable Means in Each War Category - Time Period 2

Variables	Main Force Mean	Hybrid Mean	Guerrilla Mean	Other Mean	Countrywide Mean
1 Friendly Deaths-Friendly Initiated	50	114	53	20	57
2 Total Friendly Deaths	69	166	90	35	89
3 Total War Deaths	365	920	210	92	372
4 Enemy Initiated Incidents	67	115	66	26	60
5 Enemy Personnel Strength	6693	12271	2888	1726	4781
6 Friendly Personnel Strength	8858	14990	8242	5519	8796
7 Total VCI Strength	1011	4235	3345	1036	2090
8 % Friendly Regular KIA-Large Operations	19	39	10	16	25
9 Friendly Regular % of Total Deaths	13	8	6	11	10
10 % Enemy Attacks Targeting Military	70	70	71	58	65
11 NVA Unit Strength	3045	5559	0	231	1682
12 VC % of Enemy Strength	30	49	95	60	62
13 Regular Unit % of Friendly Strength	54	46	14	22	32
14 Friendly Large Operations	6	20	13	6	11
15 Regular Unit % KIA-Small Operations	45	10	1	7	9
16 % Friendly Deaths-RF/PF Operations	3	7	33	23	17
17 Small Unit Operations with Contact	57	101	8	5	29
18 RF/PF % of Small Unit Operations	2	6	20	12	10
19 VC Local Unit Strength	1956	5189	2202	1045	2115
20 RF/PF Strength	3521	7304	7035	3923	5162
21 % Enemy Incidents Against Civilians	7	3	2	10	6
22 RF/PF % Total Deaths	3	4	13	20	12

Provinces loading
strongest in the
major war types.

Thua Thien	Quang Tri	Kien Phong
Phuoc Long	Quang Nam	Kien Hoa
Binh Long	Quang Tin	Vinh Binh
	Quang Ngai	Vinh Long
	Binh Dinh	Kien Giang
	Phu Yen	Phong Dinh
	Dinh Tuong	Ba Xuyen
	An Xuyen	

(U) The hybrid war category again dominates the major strength, activity and results variables. In fact, in this time period the hybrid war provinces become indicative of heaviest enemy combat strength and NVA personnel strength, both formerly main force variables. It will be observed, as the other time periods are analyzed, that the hybrid category overtakes the main force category in enemy combat strength total for four of the remaining seven time periods. However, it is only in this time period that the hybrid category averages the greatest NVA personnel strength per province.

(U) Reference to Table IV-2 indicates that MR I is again primarily characteristic of hybrid war. Quang Tri, in fact, loses its main force loading and emerges with only a rather weak hybrid loading (.11). The substance of these events is not to indicate decreasing war activity in Quang Tri, but rather the increased combat levels which the rest of the country was in the throes of as a result of TET. The effect of the high levels of war occurring

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throughout the country was to mute the distinctiveness of Quang Tri's activity. With its 0% level of VC combat strength, Quang Tri was unable to meet the pattern requirements of any war category in this time period.

(U) Chart 2 illustrates that only 3 variables have become most highly represented in the main force war category:

- regular unit percent of total deaths (13%) (interestingly, the "other" provinces average near parity (11%) to the main force monthly mean for this variable);
- regular unit percent of friendly combat strength (54%);
- percentage of friendly deaths on small unit operations (45%).

(U) The first two variables above are not particularly anomalous; however, the percentage of friendly deaths on small unit operations is much more consistently represented in the hybrid or "other" war provinces. This is the only time period in which the main force provinces dominate this variable; in fact, an entire nine time period mean indicates that this variable will average lowest overall in the main force war provinces.

(U) The main force war type eliminated Pleiku and An Giang with both of those provinces falling into the other category. Binh Long and Binh Duong, on the other hand, both achieve main force status, it being noteworthy that these are the only loadings to be recorded for these provinces over nine time periods.

(U) As indicated previously, the hybrid war provinces continue to average highest for several variables. The following changes are noteworthy:

- total enemy military strength is now concentrated in the hybrid provinces rather than in the main force, this being a function of increased NVA troop levels; and
- regular unit percent of friendly combat strength becomes exemplary now of the main force category rather than hybrid, and will remain such in most future time periods.

(U) The guerrilla war provinces average low means again if compared to our prior study, however, they are for the most part higher than the loadings for time period 1. The characteristics of a guerrilla war cluster remain the same as the first six months, except that the mean on RF/PF percent of total deaths is now highest in the "other" war category.

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(U) Within the confines of this brief sketch of activity, it can be seen that, similar to our earlier findings, TET has displayed a unique distribution of activities and resources. Contrary to what we had expected, Tay Ninh and Kontum did not acquire a main force loading as a result of the influx of U.S. troops. Rather they continued to display a differently patterned activity which placed it in the "other" type category. Chart 3 shows variable averages for these two provinces in time periods 1 and 2 in comparison with the main force averages:

(C) Chart 3 - Monthly Variable Averages

	<u>Tay Ninh</u> Time Periods		<u>Kontum</u> Time Periods		<u>Main Force</u> Time Periods	
	1	2	1	2	1	2
Total Friendly KIA	37	94	87	183	130	89
Friendly KIA on Friendly Initiated Actions	16	47	72	144	100	50
% Total Deaths - Regular Units	15%	10%	63%	13%	8%	13%
% Friendly KIA on Regular Large Operations	37%	91%	45%	84%	28%	19%
% Friendly KIA on Regular Small Operations	3%	0	0	1%	5%	45%
Friendly Combat Strength	3416	6972	5950	9452	10032	8858
Regular % Friendly Combat Strength	0%	21%	26%	50%	46%	54%
Enemy Combat Strength	0889	6372	9140	8504	10847	6693
NVA Combat Strength	4283	1684	6415	6232	7086	3045
VC % Combat Strength	51%	71%	8%	7%	9%	30%
Friendly Large Operations	5	7	16	12	11	6

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(U) Although both Kontum and Tay Ninh are distinctly different, they can be viewed comparatively against the main force province cluster within the variables utilized for the above chart.

(C) In time period 1 Tay Ninh fails to fall into the main force category on several counts: 1) total friendly KIA averages 37 in Tay Ninh as compared to 130 in the average main force province; 2) friendly KIA on friendly initiated incidents averages 16, while the main force provinces average 100; 3) friendly combat strength is only 3,416 as compared to the 10,032 for main force provinces; 4) VC combat strength is 51% in Tay Ninh and only 9% in the main force provinces; and 5) most significantly, the regular unit % friendly combat strength is 0 while main force provinces average 46%.

(U) While the lack of comparison to the main force cluster is obvious, it might be questioned why regular unit deaths are reported (15% monthly), but the regular unit percent of friendly combat strength is zero. Most likely, regular ARVN or U.S. troops did some fighting in Tay Ninh during this time period, however, did not actually base themselves there or establish a presence which would have been reported.

(C) As discussed previously, the main force war cluster underwent change from time period 1 to time period 2, due in large part to the TET offensive. Interestingly, Tay Ninh became more closely related to main force, although still not loading in this category, while Kontum experienced war activity greatly in excess to the main force provinces. For example, 1) main force total friendly KIA in time period 2 averaged 89, Kontum averaged 183 monthly; 2) percent friendly KIA on friendly initiated incidents was 19% in the main force cluster, but Kontum's percentage shot up to 84%; 3) averaging 6,415 man for NVA combat strength, Kontum had double the amount reported for the main force provinces.

(U) As described, Kontum and Tay Ninh didn't adjust to any patterns of war found during the first two time periods, but nonetheless present pictures of activity worth examining. Of greater interest, will be the way both provinces conform to the main force structure in future time periods and why.

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Spring/Summer 1968 (Time Period 3) April-September 1968

(U) Primary characteristics of period 3 in the first province profile analysis paper were the following:

- . Post-TET was characterized by only 20 classifiable provinces (the lowest of the four years) and only 15 provinces with a classification other than main force (also the lowest of the four years).
- . The distinctions between hybrid and guerrilla war became blurred and very difficult to distinguish -- the major difference between hybrid and guerrilla war types was the ratio of NVA to VC units.
- . Activity in this time period resulted in the highest GVN KIA figures of the four years under consideration (fighting in the May 1968 offensive was more intense than during TET).
- . Measures of activity show very irregular patterns due to the effort on clearing of new areas by friendly forces and extensive sweeping operations by local and ARVN troops.
- . From post-TET onward, the patterns of the war became increasingly distinct.
- . Tay Ninh failed to fit into one of the three war categories because of the predominance of U.S. effort in this province, which was not in the analysis.
- . Binh Dinh and Dinh Tuong showed hybrid characteristics with fairly heavy casualties.
- . Chuong Thien and Long An became guerrilla war provinces characterized by heavy VC attacks in poorly protected areas.

Province Clusters with U.S. Data (Time Period 3)

(U) Time period 3 presents the post-TET picture. The strength of the province clusters has diminished somewhat, particularly in MR I and II. In fact, with the exception of time period 1, it has the fewest provinces loading above 0.1 on at least one war type.

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(U) Chart 4 presents the means for activities, strength and results data applicable to each war type in this time period:

(C) Chart 4.

Monthly Variable Means in Each War Category - Time Period 3

Variables	Main Force Mean	Hybrid Mean	Guerrilla Mean	Other Mean	Countrywide Mean
1 Friendly Deaths-Friendly Initiated Actions	195	121	42	14	65
2 Total Friendly Deaths	231	179	58	29	92
3 Total War Deaths	1414	822	147	79	378
4 Enemy Initiated Incidents	68	118	28	20	47
5 Enemy Personnel Strength	15325	9513	2569	2034	4924
6 Friendly Personnel Strength	15071	16123	8564	6045	9585
7 Total VCI Strength	1324	4471	3418	1109	2019
8 % Friendly Regular KIA-Large Operations	62	42	9	14	23
9 Friendly Regular % of Total Deaths	10	9	5	10	9
10 % Enemy Attacks Targeting Military	79	76	61	64	67
11 NVA Unit Strength	11012	2937	0	610	2087
12 VC % of Enemy Strength	19	47	100	61	59
13 Regular Unit % of Friendly Strength	50	39	10	25	29
14 Friendly Large Operations	21	25	20	9	17
15 Regular Unit % KIA-Small Operations	1	12	1	4	4
16 % Friendly Deaths-RF/PF Operations	1	3	10	15	8
17 Small Unit Operations with Contact	15	104	2	2	18
18 RF/PF % of Small Unit Operations	7	3	10	14	9
19 VC Local Unit Strength	2516	4892	1882	924	1856
20 RF/PF Strength	5972	9496	7656	4352	6046
21 % Enemy Incidents Against Civilians	3	2	2	5	4
22 RF/PF % Total Deaths	1	3	5	14	7

Provinces leading
strongest in the
major war types.

Quang Tri	Quang Nam	Kien Phong
Thua Thien	Quang Tin	Kien Hoa
Kontum	Quang Ngai	Vinh Binh
Tay Ninh	Binh Dinh	Vinh Long
Bac Lieu	Dinh Tuong	Kien Giang
		An Xuyen
		Chau Doc

(C) The aftermath of the TET offensive involved continuation of offensive enemy action. However, U.S. and ARVN troops were by now more prepared to face the enemy threat. The war picture, therefore, changed. As can be observed from Chart 4 above, it is now in the main force war provinces that the major proportion of war deaths are occurring. For example, variable 3, total war deaths averaged a monthly 1,414 in the main force provinces. Only the hybrid provinces come close to this figure, averaging 822. Regular troop strength and activity has again become dominated by the main force war cluster. For example, NVA personnel strength averages 11,012, the VC making up only 19% of the enemy combat strength. The friendly side moreover has 50% regular units in its fighting force total.

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(U) Contrary to our previous findings, the guerrilla and hybrid clusters are indeed distinguishable and can be differentiated by more than enemy personnel strength ratios. For example, the enemy incident total continues to average very high in the hybrid provinces, 118 while only 28 in the guerrilla. Friendly combat strength is double the level in the guerrilla war provinces, and the monthly small operations with contact average 104 in the hybrid provinces, but only 10 in the guerrilla cluster.

(U) As we found in our previous study, fighting in the May and June offensives and the friendly offensive efforts became more intense than even during TET. The patterns of war continue to be irregular, but in future time periods will be seen to gradually subside into patterns already theoretically demarcated by the associations we have discovered in time periods 1, 2 and 3.

(C) In MR I for time period 3 Quang Tri loaded solely main force for the first time. Although it is only a .19 loading, it contrasts greatly to the solitary .11 hybrid loading in time period 2. A delineation of the variables whose increased magnitude characterized the main force pattern is:

(C) Chart 5.

<u>Quang Tri</u>	<u>Time Period 2</u>	<u>Time Period 3</u>
Total Friendly KIA	384	515
Total War Deaths	2168	3326
Enemy Personnel Strength	34186	40399
Friendly Personnel Strength	20925	25436
NVA Combat Strength	28966	35867
Friendly Small Unit Operations	7	23

Meanwhile, variables indicative of local war action in Quang Tri (as well as other main force provinces) were falling, as shown in Chart 6 below:

(C) Chart 6.

<u>Quang Tri</u>	<u>Time Period 2</u>	<u>Time Period 3</u>
% VC Strength	.7	0.0
% Friendly KIA on Regular Small Operations	3	0
VC Local Strength	5086	4531
% RF/PF Deaths	.7	.2

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(U) In contrast to the stronger main force characteristics of Quang Tri, Quang Tin and Quang Ngai load exclusively on the hybrid war type. These results are comparable to the findings of our earlier study. Examples of variables which brought about the changeover from strong hybrid/weak main force patterns for these MR I provinces to exclusive hybrid war association are the following:

1. Friendly KIA on friendly initiated actions increased in both provinces. This is admittedly a characteristic of main force war; however, its increase in these provinces is a great deal lower than the average increase in the main force provinces. The data in Chart 7 illustrates this concept.

(U) Chart 7.

Friendly KIA on Friendly Initiated Actions

	<u>Quang Tin</u>	<u>Quang Ngai</u>	<u>Average Main Force Province</u>
Time Period 2	53	66	50
Time Period 3	56	93	195

It can be observed from Chart 7 that the association of Quang Tin and Quang Ngai with hybrid rather than main force war is a function not so much of a change in the level of friendly initiated combat as it is a function of their not increasing to the level of the main force provinces, viz., Quang Tri, Thua Thien, and Quang Nam.

2. Chart 8 illustrates the same concept for the total friendly KIA data.

(U)Chart 8.

Total Friendly KIA

	<u>Quang Tin</u>	<u>Quang Ngai</u>	<u>Average Main Force Province</u>
Time Period 2	70	112	89
Time Period 3	91	152	231

Again although friendly deaths have increased in these two hybrid provinces, the total still falls far behind the average increase in main force provinces.

3. The hybrid characteristics of Quang Tin and Quang Ngai are emphasized by several local war variables which decreased in average magnitude but nonetheless were still higher than in any of the main force provinces:

Chart 9.

(U) Total VCI Strength

	<u>Quang Tin</u>	<u>Quang Ngai</u>	<u>Average Main Force Province</u>	<u>Average Hybrid Province</u>
Time Period 2	5219	3785	1011	4235
Time Period 3	4738	3437	1324	4471

The greater similarity to the hybrid war average is apparent in the above chart.

Chart 10.

(U) Maneuver Battalion (Combat) % of Enemy

	<u>Quang Tin</u>	<u>Quang Ngai</u>	<u>Average Main Force Province</u>	<u>Average Hybrid Province</u>
Time Period 2	52	42	54	46
Time Period 3	49	33	50	39

In Chart 10, Quang Tin is closer to main force than hybrid, while Quang Ngai is the opposite, however, their values in still other variables further implicate them as primarily hybrid provinces.

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(U) Chart 11.

% Friendly KIA on Regular Small Operations

	<u>Quang Tin</u>	<u>Quang Ngai</u>	<u>Average Main Force Province</u>	<u>Average Hybrid Province</u>
Time Period 2	10	23	45	10
Time Period 3	6	19	1	12

In Chart 11, inspite of the main force province fluctuation on this variable between the TET and post-TET periods, both Quang Tin and Quang Ngai relate primarily to the hybrid war.

(C) Chart 12.

VC Local Strength

	<u>Quang Tin</u>	<u>Quang Ngai</u>	<u>Average Main Force Province</u>	<u>Average Hybrid Province</u>
Time Period 2	4972	5548	1956	5189
Time Period 3	3711	4978	2516	4892

In Chart 12, the relationship to the hybrid war characteristics of high VC local strength is obvious.

(U) Tay Ninh and Bac Lieu both had their initial main force loadings in time period 3, though both were very weak (.10 and .11 respectively). Tay Ninh had by far the highest monthly average friendly KIA on regular large operations -- 92%. Total deaths in Tay Ninh which averaged 2213 per month in this time period, were exceeded only by Quang Tri and Quang Nam. The percent enemy incidents against military targets was fifth highest in Vietnam with a monthly average of 83%. While friendly personnel combat strength was primarily made up of regular forces in Tay Ninh, the enemy strength consisted of 78% VC units, which accounts for the weakness of the loading on main force war which was predominantly high on NVA unit strength. Tay Ninh, on the other hand, was also unlike the hybrid war pattern use of the relative weakness of its local war variables.

Bac Lieu loaded .10 main force in conjunction with a .12 hybrid loading.

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In the case of this province, it is not the activities occurring in Bac Lieu which brought about these distinctions as much as the changing character of the main force typology. Time period 3 was an extremely active period with death rates soaring as a result of highly concentrated enemy forces and their accompanying attacks. In Bac Lieu, however, the comparability to main force lies with its pattern of local war variables:

(C) Chart 13.

	Main Force Provinces' Average	Bac Lieu
Friendly Large Unit Operations	21	20
% Friendly KIA on Regular Small Operations	1	0
VC Local Strength	2516	1611
% Incidents Against Civilians	3	0
% Total Deaths - RF/PF	1	3

(C) This pattern similarity holds true also for the hybrid local war variables. The provinces associated with hybrid war have changed very little from time period 2 to time period 3, with the exception of Quang Tri which reversed from hybrid back to main force. Nor does a change occur in the hybrid war characteristics. The major difference in the hybrid war cluster has been a decrease in NVA personnel strength by an average 2600. The main force cluster picked up this enemy personnel strength, and more, with a 7967 average increase of NVA unit strength in main force provinces. In terms of friendly troop strength, both war typologies increased -- hybrid by about 2,000, main force by about 9,000.

(U) The guerrilla war provinces also changed very little from time period 2 to time period 3. Chuong Tien picks up its first loading, which is distinguished additionally by the fact that it did not load at all in the results derived from our earlier study. Some of the occurrences which generated this loading were an 18% increase in the percent killed on RF/PF operations which, in turn, effected an average monthly increase of 33 in total war deaths. These were the primary indicators producing a guerrilla war characteristic.

(U) An Xuyen shifted from the .11 hybrid to a .15 guerrilla loading. As with Chuong Tien, neither of these loadings were present in the first province profile analysis. The only variables which increased significantly in An Xuyen in this time period were friendly large operations, which tripled, and percent

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small operations by territorial forces, which doubled. Concurrently, most other variables were decreasing, i.e., death variables, friendly and enemy regular strength variables, and most enemy incident data. These, coupled with the increase of local force action, brought about the local war dominance which resulted in the guerrilla loading.

(U) The third time period was by no means tranquil. Both friendly and enemy deaths are higher than in any other time period. The only other variable which reaches its high point in this time period is NVA personnel strength. This is not surprising in view of the enemy decision to increasingly localize the war in succeeding periods.

(U) In contrast to the deadliness for time period 3, percent small operations by RF/PF is at its lowest level, as is percent friendly KIA on RF/PF operations, and percent friendly KIA on regular small operations. This indicates the greater friendly preference for large operations at this time in the war.

(U) The 24 "other" provinces in this time period, while essentially unpatterned, have exhibited strengths which are allowing us a clearer perspective of their qualities. For instance, we now know that the percent KIA on regular large operations, as well as RF/PF KIA, average out at their highest in these provinces. In addition, these provinces exhibit the greatest average number of small operations by the RF/PF and the highest percent enemy incidents against civilian targets. Chart 14 indicates the strength of these variables in "other" provinces as compared to the countrywide averages in time period 3.

(U) Chart 14.

	<u>"Other" Provinces</u> <u>Time Period 3</u>	<u>Countrywide Averages</u> <u>Time Period 3</u>
% Total Regular Unit Deaths	10	9
% Friendly KIA on RF/PF Operations	15	8
% Small Operations by RF/PF	14	9
% Enemy Incidents Against Civilians	5	4
% Total RF/PF Deaths	14	7

Winter 1968-1969 (Time Period 4) October 1968-March 1969

(U) Primary characteristics of period 4 in the first province profile analysis paper were the following:

- . The war returned to its pre-TET level of fighting.
- . The number of provinces falling into one of the types of war categories increased by four, the largest increase of any time period.
- . The strength of the loadings during this time period were comparatively low.
- . MR II became an area of substantial main force war.
- . The Saigon area showed revived levels of both hybrid and guerrilla patterns.

Province Clusters with U. S. Data (Time Period 4)

(U) Time period 4 bears a close resemblance to the loadings in time period 3. As pointed out earlier, the U.S. data has contributed to a more consistent regional structure in the loadings on the three basic war types. This means that there is increasing regularity to be observed in the overall characteristics of each province.

(U) Chart 15 presents the means for activities, strength and results data applicable to each war type in this time period. As illustrated, the hybrid war cluster has regained the highest averages for many variables indicative of heavy combat. But it continues to retain its local war characteristics, dominating highest averages for percent KIA on RF/PF operations, number of friendly small operations, VC local unit strength and RF/PF strength.

(U) MR I did not undergo any significant changes from time period 3. Quang Tri, although retaining its strong main force loading, picked up a weak (.10) hybrid loading.

(U) Quang Ngai, on the other hand, regained a fairly strong (.20) main force loading. The differences in the data which account for its return to main force status -- one which it keeps throughout the rest of our study although always relative to a slightly higher hybrid loading -- are very

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(C) Chart 15.

Monthly Variable Means in Each War Category - Time Period 4

Variables	Main Force Mean	Hybrid Mean	Guerrilla Mean	Other Mean	Countrywide Mean
1 Friendly Deaths-Friendly Initiated Actions	81	96	45	12	43
2 Total Friendly Deaths	105	142	59	25	65
3 Total War Deaths	708	764	170	89	323
4 Enemy Initiated Incidents	39	84	24	24	38
5 Enemy Personnel Strength	8800	8076	2870	2257	4551
6 Friendly Personnel Strength	11842	17164	9764	7769	10794
7 Total VCI Strength	1081	4190	3497	924	1979
8 % Friendly Regular KIA-Large Operations	66	34	8	19	27
9 Friendly Regular % of Total Deaths	9	8	5	12	10
10 % Enemy Attacks Targeting Military	69	78	66	67	69
11 NVA Unit Strength	5665	2324	0	616	1717
12 VC % of Enemy Strength	39	56	100	54	59
13 Regular Unit % of Friendly Strength	41	38	14	29	31
14 Friendly Large Operations	16	31	23	15	21
15 Regular Unit % KIA-Small Operations	2	10	1	10	7
16 % Friendly Deaths-RF/PF Operations	1	4	14	23	13
17 Small Unit Operations with Contact	10	132	5	7	27
18 RF/PF % of Small Unit Operations	4	4	21	13	11
19 VC Local Unit Strength	1509	4130	2102	1074	1799
20 RF/PF Strength	5455	9974	8323	5065	6682
21 % Enemy Incidents Against Civilians	5	2	1	7	5
22 RF/PF % Total Deaths	2	3	5	9	6

Provinces leading
strongest in the
major war types.

Quang Tri	Quang Nam	Kien Hoa
Thua Thien	Quang Tin	Vinh Long
Kontum	Quang Ngai	Kien Giang
Phu Bon	Binh Dinh	Phong Dinh
Long Khanh	Phu Yen	Ba Xuyen
Tay Ninh	Dinh Tuong	An Xuyen
Kien Tuong	Vinh Binh	Chau Doc

apparent. While other main force provinces, notably Quang Tri, Thua Thien and Quang Nam, were experiencing much heavier NVA combat strengths within their borders in time period 3 and resultant high death tolls, Quang Ngai was concomitantly undergoing just the opposite experience.

(C) Quang Ngai did experience a slight upsurge in activity from the TET time period to the post-TET (period 2 to 3). However, while most main force provinces experienced significant activity increases in time period 3 with a downshift following in time period 4, Quang Ngai continued to experience increased enemy presence and activity in period 4. This can be observed through examining the following data chart:

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(C) Chart 16.

Quang Ngai Monthly Averages

	<u>Time Periods</u>		
	<u>2</u>	<u>3</u>	<u>4</u>
Friendly KIA on Friendly Initiated Activity	66	93	<u>162</u>
Total Friendly KIA	112	152	<u>215</u>
Total War Deaths	697	583	<u>1060</u>
Enemy Incident Total	<u>98</u>	92	97
Enemy Personnel Strength	8282	9620	<u>11889</u>
NVA Combat Strength	700	2350	<u>4546</u>
% VC Strength	<u>73%</u>	54%	37%
Friendly Personnel Strength	16745	14852	<u>17876</u>
Friendly Large Operations	19	14	<u>27</u>
% Friendly Killed on Regular Large Unit Operations	25%	25%	<u>38%</u>
% Enemy Incidents Against the Military	<u>83%</u>	81%	<u>83%</u>

(U) Chart 16 conveys a clear shift toward main force war in time period 4. In addition, it depicts intensified war activity, which is evidently the outcome of friendly initiative. As can be observed, both enemy incident indicators show little variance over the three time periods. However, the friendly large operations have increased significantly, and the results are most evident. Notably, this was accomplished with slight modification in friendly strength levels.

(U) In MR II, Binh Dinh lost its weak main force adjunct to its strong hybrid loading. More interesting is Phu Bon's first main force loading (.13). This is similar to the outcome of our initial study in which Phu Bon achieved a .13 loading, also in time period 4. This leads to an apparent conclusion that our induction of U.S. data into this present research effort has not been a factor in describing activities in Phu Bon. In fact, close examination of the data set for ARVN operations bears this out; namely, that GVN battalion days began to be reported in January of 1969 and continued for five straight months. There appears to have been sections of unreported data prior to this time, which accounts for no loadings registering before this time period.

(U) Tay Ninh registered stronger loadings in this time period, viz., .22

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main force, .13 hybrid. The total war deaths climbed by approximately 400 in this time period. However, the changes in average values for other variables prove more insightful:

(C) Chart 17.

Tay Ninh Monthly Averages

	<u>Time Period 3</u>	<u>Time Period 4</u>
Total War Deaths	2213	<u>2637</u>
Enemy Personnel Strength	10127	<u>13058</u>
NVA Combat Strength	2130	<u>4644</u>
% VC Strength	<u>78%</u>	61%
Enemy Incident Total	53	<u>80</u>
% Enemy Incidents Against the Military	84%	<u>92%</u>
Friendly Personnel Strength	10961	<u>17194</u>
Friendly KIA Total	326	<u>388</u>
% Total Deaths - Regular Forces	<u>12%</u>	11%
Friendly Large Operations	14	<u>20</u>
Friendly Small Operations	6	<u>7</u>
Territorial Force Strength	8036	<u>8885</u>
Operations by Territorial Forces	<u>22%</u>	19%

(C) As evidenced from Chart 17, the war activity in Tay Ninh, at least as regards the friendly initiative did not increase sharply. However, as explained in the beginning of this section, the main force cluster variable averages declined overall, which accounts for the strong main force loading. On the other hand, Tay Ninh retained its unique status, especially in view of its average monthly total war dead of 2637, which contrasts most vividly to the countrywide average of 323. The only province cluster which even approaches it would be the hybrid average of 764.

(U) The variables which determine the high main force war loading, however, are Tay Ninh's very high enemy personnel strength and NVA strength; the high percent of friendly regular forces getting killed, plus the low number of friendly large and small operations (low, in comparison to the hybrid war cluster).

(U) Kien Tuong showed a main force loading (.15) in this time period in which it is characterized by one of the war types for the first time (except for a very weak guerrilla war loading (.10) in the first time period). The data shows that the total war deaths in Kien Tuong reached 572 compared to the

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the countrywide average of 378. This is, of course, an extreme figure for Kien Tuong, which had previously been marked by combat intensity much less than half of that. Other anomalies for this province in period 4 were the high percent friendly regular troops killed on large operations, plus a slightly higher number of large unit and small unit operations.

(U) It is useful to consider here that the overall number of friendly regular troops killed on large operations is higher in time period 4 than in any other time period. It follows on the heels of time period 3 during which there were more war deaths than at any other time in our study. It can be observed in examining the chart of our province clusters that in succeeding periods most of the provinces will remain associated with patterns established in periods 3 or 4. That is, within the limits of this data set, the observable activity will appear to become entrenched further and further into quite precise patterns of deployment and operations. It will be of major significance to note the difference between the 1968 TET offensive and the increased activity which will occur in 1970. In the former, the GVN had weak control, but it was sufficient to prevent the war from slipping into the hands of the enemy. The result was the weakening of the structure. But by 1970 the increased activity will follow the patterns which had been established and, in fact, will precipitate the greatest ordering of the war to that date.

Spring/Summer 1969 (Time Period 5) April-September 1969

(U) Primary characteristics of period 5 in the Analysis of Vietnamization paper were the following:

- . MR I and MR II reflect increasing ARVN capability by heightened main force, and to a lesser extent, hybrid war activity.
- . There is a noticeable spurt of main force activity in the eastern coastal area, viz., Phu Yen, Darlac, Khanh Hoa, Ninh Thuan.
- . NVA combat unit percentages of enemy strength are well above average in MR II.
- . The RF/PF strengths were all above the average province mean in MR II.
- . MR III and IV maintain overall patterns, however, they begin to show stronger associations with guerrilla war characteristics.

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Province Clusters with U.S. Data (Time Period 5)

(U) As opposed to our earlier study, time period 5 does not exhibit the same characteristic of heightened main force activity now that the U.S. data has been infused into the data base. In fact, it is the hybrid loadings which increase in most cases. Chart 18 presents the means for activities, strength and results data applicable to each war type in this time period:

(C) Chart 18.

Monthly Variable Means in Each War Category - Time Period 5

Variables	Main Force Mean	Hybrid Mean	Guerrilla Mean	Other Mean	Countrywide Mean
1 Friendly Deaths-Friendly Initiated Actions	46	73	42	13	34
2 Total Friendly Deaths	78	123	64	32	59
3 Total War Deaths	411	903	171	87	314
4 Enemy Initiated Incidents	50	118	38	32	49
5 Enemy Personnel Strength	5996	8731	2970	2257	3932
6 Friendly Personnel Strength	14248	21597	11745	7515	11629
7 Total VGI Strength	1569	5421	3420	955	1998
8 % Friendly Regular KIA-Large Operations	61	58	11	4	21
9 Friendly Regular % of Total Deaths	11	8	5	12	9
10 % Enemy Attacks Targeting Military	78	84	71	73	75
11 NVA Unit Strength	3540	3016	55	806	1157
12 VC % of Enemy Strength	26	44	22	60	56
13 Regular Unit % of Friendly Strength	41	45	16	28	31
14 Friendly Large Operations	18	15	32	13	24
15 Regular Unit % KIA-Small Operations	11	11	0	12	8
16 % Friendly Deaths-RF/PF Operations	8	8	11	24	17
17 Small Unit Operations with Contact	17	89	3	7	18
18 RF/PF % of Small Unit Operations	5	11	18	12	11
19 VC Local Unit Strength	1921	4138	2162	799	1683
20 RF/PF Strength	7277	11678	9712	4782	7198
21 % Enemy Incidents Against Civilians	4	2	3	5	4
22 RF/PF % Total Deaths	3	2	6	11	7

Provinces loading
strongest in the
major war types.

Quang Tri
Thua Thien
Kontum
Pleiku
Phu Yen
Khanh Hoa

Quang Nam
Quang Tin
Quang Ngai
Binh Dinh
Dinh Tuong

Kien Hoa
Vinh Binh
Vinh Long
Kien Giang
Phong Dinh
Ba Xuyen
Chau Doc

Looking at the means for all war types, it can be seen that a great majority of the resource, activity and result variables are indeed greatest within the hybrid war cluster. In fact, 13 out of our 22 variables are highest in the hybrid war provinces. Recalling the findings analyzed in time periods 1 through 4, the increase in hybrid war loadings substantiates our conclusion that the main force provinces have acquired an elite status in which NVA and friendly regular forces

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dominate while those provinces with high levels of regular forces accompanied by incidents of local war (e. g., VC troop strength, friendly KIA on regular small operations, etc.) have a much stronger association with the hybrid war pattern.

(U) This point is illustrated very clearly in MR II. Our initial province cluster profile analysis gave a slight main force loading to four MR II provinces: Phu Yen, Darlac, Khanh Hoa and Ninh Thuan. These loadings have changed quite drastically:

(U) Chart 19.

	<u>November Cluster Analysis</u>			<u>Analysis with U.S. Data</u>		
	<u>Main Force</u>	<u>Hybrid</u>	<u>Guerrilla</u>	<u>Main Force</u>	<u>Hybrid</u>	<u>Guerrilla</u>
Phu Yen	.13	.20	-	.12	.11	-
Darlac	.11	-	-	-	-	-
Khanh Hoa	.14	.15	-	-	-	-
Ninh Thuan	.11	-	-	-	-	.12

(U) As can be seen, most of the loadings dropped out completely. Ninh Thuan, on the other hand, switched from a .11 main force to a .12 guerrilla loading. This results from a restructuring of the cluster characteristics. It is interesting to note, however, that this is the first time with the exception of Binh Thuan, that guerrilla war loadings have appeared in MR II. The major change that can be distinguished in the guerrilla war province averages over time is a significant increase in the NVA troop strength within them, and a slight increase in the number of large unit operations being carried out within their borders. Reference to Chart 18 indicates that the average guerrilla war province has an NVA personnel strength of 55 and 32 friendly large operations per month.

(C) A close inspection of Phu Yen indicates that a lowering of KIA resulted from time period 4 to time period 5; however, increases can be observed in the number of small operations being carried on by territorial forces, the percent friendly KIA on RF/PF operations, as well as enemy initiated incidents against the military. It is factors such as these which will bring about the brief spurts of guerrilla war activity which occasionally appear in MR's I, II and III. In addition, there was the issuance of COSVN Resolution 9, which stipulated increased implementation of small unit and guerrilla activity. Resolution 9 was suggestive that heavy battalion and regimental-sized units were responsible for the severe defeats that the VC had suffered since the beginning of 1969. The VC were, therefore, directed to cut down on concentrations of large bodies

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of troops. Furthermore, Directive 103, dated June, 1969, indicates that the strategic areas and the battlefield would now be urban, city outskirts (as opposed to rural areas). The inclusion of U.S. data has provided a more perceptive insight into where this resolution is being implemented. The guerrilla war loadings themselves do not provide ready explanation as much as the characteristics which define the guerrilla plus the hybrid war clusters. The hybrid cluster is now encompassing a much wider range of attributes than it had when the analysis considered only RVNAF and VC-NVA presence and activity. With the main force activity much more tightly defined, both the hybrid and guerrilla clusters have also attained much more defined and distinct characteristics.

Winter 1969-1970 (Time Period 6) October 1969-March 1970

(U) Primary characteristics of period 6 in the first province profile analysis paper were the following:

- . A local war trend can be distinguished by reason of increasing hybrid loadings, even in MR I.
- . MR I reflects a de-escalation in action in comparison to prior periods; however, casualty figures point primarily to a diminished U.S. war effort, with continuing GVN activity.
- . Hybrid and guerrilla war loadings in MR IV become strongest since the TET offensive.
- . GVN regular and local force initiative in MR IV lend to an aggregated increase in GVN deaths and activities at the countrywide level.
- . VC units account for nearly 100% of enemy strength in most provinces of MR IV; RF/PF units have also greatly increased, and appear to be bearing the brunt of the war effort.
- . Main force war characteristics emerged in Chau Doc and An Giang; probably as a result of the Cambodian exercise.
- . Hostilities appeared to be achieving a state of predictability with patterns becoming defined and quite stable.

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Province Clusters with U.S. Data (Time Period 6)

(U) Chart 20 presents the means for activities, strength and results data applicable to each war type in this time period:

(C) Chart 20.

Monthly Variable Means in Each War Category - Time Period 6

Variables	Main Force	Hybrid	Guerrilla	Other	Countrywide
	Mean	Mean	Mean	Mean	Mean
1 Friendly Deaths-Friendly Initiated Actions	41	63	27	6	27
2 Total Friendly Deaths	63	114	54	24	51
3 Total War Deaths	536	519	132	70	241
4 Enemy Initiated Incidents	55	111	34	36	49
5 Enemy Personnel Strength	5350	6786	2531	1628	3335
6 Friendly Personnel Strength	11960	20379	13146	10210	12172
7 Total VCI Strength	1022	4360	3703	914	1874
8 % Friendly Regular KIA-Large Operations	52	43	17	8	23
9 Friendly Regular % of Total Deaths	11	7	9	10	9
10 % Enemy Attacks Targeting Military	84	85	75	70	77
11 NVA Unit Strength	2728	2380	13	272	1073
12 VC % of Enemy Strength	31	45	92	60	55
13 Regular Unit % of Friendly Strength	45	35	18	21	29
14 Friendly Large Operations	17	28	22	26	23
15 Regular Unit % KIA-Small Operations	6	10	1	14	10
16 % Friendly Deaths-RF/PF Operations	5	9	19	39	23
17 Small Unit Operations with Contact	7	86	2	13	21
18 RF/PF % of Small Unit Operations	9	8	11	8	10
19 VC Local Unit Strength	1267	3350	2130	872	1544
20 RF/PF Strength	5832	12567	10703	7397	7956
21 % Enemy Incidents Against Civilians	14	8	7	26	17
22 RF/PF % Total Deaths	6	3	10	14	10

Provinces loading
strongest in the
major war types.

Quang Tri	Quang Nam	Darlac
Thua Thien	Quang Tin	Kien Hoa
Kontum	Quang Ngai	Vinh Long
Fleiku	Binh Dinh	Kien Giang
Quang Duc	Dinh Tuong	Ba Xuyen
Phuoc Long	Vinh Binh	
Tay Ninh	Chau Doc	
Kien Tuong		

(U) Time period 6 has the highest number of provinces loading main force of any time period. The provinces which account for this unusually high number include Quang Duc (.12), Phuoc Long (.18), Dinh Tuong (.10), and Chau Doc (.23).

(U) Quang Duc displayed a sharp increase in combat intensity as NVA unit strength rose by a factor of four. The following chart shows the major differences in this period as compared with time period 5:

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(C) Chart 21.

Quang Duc Monthly Means

	<u>Time Period 5</u>	<u>Time Period 6</u>
Friendly KIA on Friendly Initiated Incidents	1	70
Total Friendly KIA	5	104
Total Deaths	7	244
Total Enemy Incidents	8	56
Enemy Personnel Strength	688	2056
Friendly Personnel Strength	2745	3725
NVA Combat Strength	440	1743
% VC Strength	6%	27%
Friendly Larger Operations	5	14

The influx of both NVA and VC units as well as increased GVN troop levels and resultant activity is evident.

(U) In time period 6 the main force cluster regains some of the stronger characteristics which it held in time period 3, i. e., highest total war deaths and highest percent total deaths on regular unit operations. This explains the changeover of Dinh Tuong from a hybrid/guerrilla province in time period 5, to a hybrid/main force loading in time period 6. The difference can be seen in this province's data scores:

(C) Chart 22.

Dinh Tuong Monthly Means

	<u>Time Period 5</u>	<u>Time Period 6</u>
Friendly KIA on Friendly Initiated Incidents	9	171
Total Friendly KIA	90	212
Total War Deaths	440	1130
Enemy Personnel Strength	4595	4837
Friendly Personnel Strength	19278	20495
NVA Combat Strength	0	119
% Friendly Regular Troop Strength	29%	37%

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As in Quang Duc regular unit troop levels accounted for most of the higher combat intensity giving Dinh Tuong its main force loading.

(U) Phuoc Long, which also loaded main force, did so at .18 which was unusual and also rather high. This province shows many of the same changes as observed in the charts 21 and 22 on the previous page.

(C) Chart 23.

Phuoc Long Monthly Averages

	<u>Time Period 5</u>	<u>Time Period 6</u>
Friendly KIA on Friendly Initiated Activities	20	22
Total Friendly KIA	29	42
Total War Deaths	69	156
Enemy Incident Total	37	43
Enemy Personnel Strength	3635	6546
Friendly Personnel Strength	6373	10671
% Friendly Killed on Regular Large Unit Operations	5%	22%
% Total Deaths - Regular Troops	28%	15%
% Enemy Incidents Against the Military	83%	89%
NVA Combat Strength	2142	3770
Friendly Large Operations	10	13
% Friendly Killed on Small Operations	24%	19%

As can be deduced from Chart 23, as well as the others, the main force loadings generally result from high levels of combat intensity, with the activities largely attributable to regular troop strengths and large unit operations. The enemy force buildup is with NVA units and the enemy incidents can be observed to increase somewhat. However, the increase in incidents appears only vaguely related to the proportion of increased friendly activity and strengths as the friendly KIA in friendly initiated action does not increase. Thus, Phuoc Long conveys a picture of increased enemy initiative in time period 6.

(U) Chau Doc loaded main force in this time period with much higher levels of friendly regular forces being present in connection with the Cambodian operations up the Mekong River. The data for U.S. forces in this analysis has

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served to increase and equalize the strength of both the main force and hybrid loadings for Chau Doc. The main force loading results from the Cambodian invasion effects, while the hybrid loading reflects the nature of the war within Chau Doc itself.

(U) As we found in our last study, the rest of MR IV has become primarily a local war battleground. Except for Kien Tuong, Dinh Tuong and Chau Doc, the VC forces constitute 100% of the provinces' enemy troop strength. The friendly force mixture isn't as clearcut; however, there is a definite decrease in the proportion of regular troop strengths over time as RF/PF strengths grow.

Spring/Summer 1970 (Time Period 7) April-September 1970

(U) Primary characteristics of period 7 in the first province profile analysis paper were the following:

- . Coincident with U.S. withdrawal, hostilities began to flare in the case of several provinces.
- . Total combat deaths increased by 30%, the sharpest ascent since the TET offensive.
- . In contradiction to the disorganization brought on by TET, the summer of 1970 activity produced highly patterned behavioral unit characteristics.
- . 22 provinces showed stronger linkages to one of the three types of war than in any other period.
- . Both friendly and enemy activity appeared to be falling into standardized modes of conflict.
- . Also in contrast to TET when the main force pattern was weakened by a countrywide increase in combat intensity, the summer offensive of 1970 resulted in the strongest main force linkages of the four years.
- . Tay Ninh emerged with a very strong main force loading highly suggestive of conspicuous ARVN NVA confrontation rather than U.S. initiative.

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- An Xuyen achieved an unprecedented main force loading as GVN troops met increased NVA strength with a positive buildup of their own.
- Main force war did not subside in Chau Doc as Cambodian operations by the ARVN continued.

Province Clusters with U.S. data (Time Period 7)

(U) Chart 24 presents the means for activities, strength and results data applicable to each war type in this time period:

(C) Chart 24.

Monthly Variable Means in Each War Category - Time Period 7

Variables	Main Force Mean	Hybrid Mean	Guerrilla Mean	Other Mean	Countrywide Mean
1 Friendly Deaths-Friendly Initiated Actions	92	38	9	8	20
2 Total Friendly Deaths	166	133	52	29	62
3 Total War Deaths	731	484	117	55	198
4 Enemy Initiated Incidents	129	160	82	39	75
5 Enemy Personnel Strength	7078	6351	2311	1443	2906
6 Friendly Personnel Strength	16349	19728	12353	8627	11889
7 Total VCI Strength	1196	3947	2198	712	1597
8 % Friendly Regular KIA-Large Operations	62	52	17	12	24
9 Friendly Regular % of Total Deaths	14	9	5	11	9
10 % Enemy Attacks Targeting Military	88	86	78	70	75
11 NVA Unit Strength	4667	2411	197	320	1012
12 VC % of Enemy Strength	25	33	74	59	54
13 Regular Unit % of Friendly Strength	43	34	12	26	25
14 Friendly Large Operations	20	21	21	16	18
15 Regular Unit % KIA-Small Operations	2	10	9	12	10
16 % Friendly Deaths-RF/PF Operations	9	14	32	36	28
17 Small Unit Operations with Contact	12	68	12	8	18
18 RF/PF % of Small Unit Operations	23	13	9	18	15
19 VC Local Unit Strength	1465	3031	1581	760	1383
20 RF/PF Strength	8855	12517	10788	5985	8376
21 % Enemy Incidents Against Civilians	26	19	32	36	32
22 RF/PF % Total Deaths	3	8	17	17	14

Provinces loading
strongest in the
major war types.

Quang Tri
Thua Thien
Kontum
Tay Ninh

Quang Nam
Quang Tin
Quang Ngai
Binh Dinh
Dinh Tuong
An Xuyen
Chau Doc

Phu Yen
Binh Thuan
Long An
Kien Hoa
Vinh Binh
Vinh Long
Kien Giang
Phong Dinh
Ba Xuyen
Bac Lieu

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(U) Time period 7 was the last time period for which data was available in the first province profile analysis. It is interesting to note that similar to the prior findings, time period 7 does indeed experience an emphatic main force intensification in four provinces: Quang Tri (.43), Thua Thien (.37), Quang Tin (.29) and Tay Ninh (.37). In fact, this is the only time period in which any loading attained a level above .40. Both Quang Tri and Kontum loaded .43 main force. This similarity of results with the U.S. data both in and out of the analysis clearly shows that the ARVN had assumed the burden of the main force war by this time.

(U) The main force cluster (for the first time since time period 3) surpassed the monthly hybrid means for both of the following variables: friendly KIA on friendly initiated actions, and total friendly KIA. In addition, the monthly average RF/PF strength and percent small operations by the RF/PF became highest of the three war types in the main force cluster for the first time. High RF/PF strengths have been primarily indicative of the hybrid war, while the small operations by RF/PF described most highly the guerrilla provinces.

(U) Taking the above named provinces as examples, this chart shows the changes that were occurring within provinces exemplary of the main force cluster from time period 6 to time period 7:

(C) Chart 25.

Monthly Province Averages

<u>Provinces:</u>	<u>Quang Tri</u>		<u>Thua Thien</u>		<u>Kontum</u>		<u>Tay Ninh</u>	
<u>Time Periods:</u>	<u>6</u>	<u>7</u>	<u>6</u>	<u>7</u>	<u>6</u>	<u>7</u>	<u>6</u>	<u>7</u>
Friendly KIA on Friendly Initiated Activity	34	107	34	52	9	47	117	162
Total Friendly KIA	59	206	55	127	27	119	153	210
Total War Deaths	329	972	308	494	77	402	2943	1056
Enemy Incident Total	95	152	50	178	42	88	91	97
Enemy Personnel Strength	5959	10583	6000	8516	3606	4356	12478	4855
NVA Combat Strength	4627	9264	3197	5843	1015	1579	5253	1982
% VC Strength	3%	0%	31%	17%	37%	33%	55%	52%
Friendly Personnel Strength	19180	18815	22642	22811	8292	8708	17464	15060
% Friendly KIA on Regular Large Unit Operations	76%	89%	76%	58%	56%	32%	94%	68%
% Total Regular Unit Deaths	14%	15%	11%	21%	12%	11%	5%	10%
Friendly Large Operations	17	27	18	11	22	10	27	33
Friendly Small Operations	11	13	7	13	3	3	19	17
% Territorial Small Ops	7%	26%	13%	20%	17%	18%	9%	30%
RF/PF Strength	8597	9381	10642	11526	5576	5819	8369	8695
% Enemy Incidents Against Civilians	6%	22%	17%	24%	13%	33%	12%	26%

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(U) The escalation in time period 7 in most cases is quite visible. The similarity between provinces in variable increases is quite prominent, Tay Ninh being a random exception. But what does this tell us? We are confronted with the fact that these four provinces, with differing troop strengths, result figures, numbers of large and small operations -- all nonetheless were undergoing similar patterns of activity which when structured comparatively resulted in a homogeneous, definable cluster which we can now define and analyze. The major difference is size, but the phenomena are similar. However, it can be seen from examination that we have isolated a group of 15 variables -- some more meaningfully and successfully than others -- and have equated four unlike yet comparable situations which when clustered together will reveal a picture of main force war.

(U) A closer inspection of the data unfolds further information:

- Total war deaths in 2 out of 4 cases more than doubled.
- Total enemy incidents in four cases increased and in 3 out of 4 more than doubled.
- Enemy personnel strength increased in all 4 provinces.
- NVA combat strength increased in 3 out of 4 cases while VC unit strength decreased in all 4.
- Friendly personnel strength showed increased in all but Quang Tri.

Even more interesting in dealing with these main force strongholds is the sudden appearance of rather significant friendly local force indicators, e. g., percent small operations and RF/PF strengths have increased in every case. The latter is, of course, parallel to countrywide circumstances; however, the fact that RF/PF strengths reach their highest levels in provinces within the main force cluster rather than guerrilla or hybrid indicates a re-ordering of correlative events and priorities. In other words, as in our last study, coincident with U.S. withdrawal, we are finding that hostilities have flared, unprecedentedly, barring TET and post-TET. The war was seeing the sharpest ascent in total combat deaths since time period 3. During this spring and summer of 1970, the enemy was staging an offensive comparable in size and threat to that following TET, 1968. We have been observing in time periods 3 through 6, the successful results of widely promoted friendly pacification efforts and drives to increase regional and hamlet-sized defensive fighting units to stabilize the patterns of conflict and thereby beat the enemy by observing his own logic, i. e.,

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winning the support and confidence of the populace. Yet the enemy, though temporarily set back, nonetheless retained the ability to withdraw, resupply, regroup, and launch a full scale disruptive offensive. The effects are surely seen by the restructuring of the patterns of war as analyzed herein.

(U) However, there are some noticeable differences which mark this offensive. Whereas, the TET resulted in immediate disorganization followed nine months later by return to stability in the war patterns, the summer of 1970 activity produced a stronger pattern of behavioral characteristics than any other period of the war studied in this paper. That is, within the limits of our data set, a steady trend toward increasingly strong identification with one of the three war types can be observed.

(U) This sharpening of the patterns of war gives concrete basis for believing that the war was beginning to acquire a rather rigid identify which was, in turn, entrenching it further and further into quite precise patterns of deployment and operations.

(U) Throughout the rest of Vietnam in time period 7 a conspicuous inclination toward stronger or solitary guerrilla war loadings is revealed. Tay Ninh and Kien Giang are the only real exceptions.

(U) The characteristics of the guerrilla war cluster have remained much more static over time than either main force or hybrid. Time period 7, however, has introduced some noticeable shifts. A comparison between the monthly guerrilla war province mean in time period 7 and the guerrilla war mean over the entire four and one-half years is depicted in Chart 26 with the most changed variables being illustrative:

(C) Chart 26.

	<u>Guerrilla War Monthly Mean</u>	<u>Average Guerrilla War Mean</u>
	<u>Time Period 7</u>	<u>All Time Periods</u>
Friendly KIA on Friendly Initiated Actions	9	38
Total War Deaths	117	178
Total Enemy Incidents	82	52
NVA Personnel Strength	197	22
% Friendly KIA on Regular Small Operations	9	2
% Enemy Incidents Against Civilians	32	8

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The increase in NVA strength is most noticeable. However, it must be kept in mind that even with these increases, the VC average percent combat strength is 74%. However, the appearance of the NVA units in guerrilla war provinces uncovers yet another aspect as the NVA units appear to be changing from their main force role to a protracted war role replacing VC units. Again we find increased enemy incidents in conjunction with heavy civilian casualties. Civilian casualties have most observably risen over the four and one-half years studied herein. This suggests that the civilians are possibly becoming actual targets rather than simply unfortunate victims. The accompanying decreases in military deaths produces a further insight. Although friendly large and small operations held steady in this time period, the numbers of casualties suffered were on the decline.

Winter 1970-1971 (Time Period 8) October 1970-March 1971

(U) The October 1970 through March 1971 data were not available when we completed the first province profile analysis. Therefore, we are inspecting it for the first time. As suspected, the patterns of war have reverted to loadings analagous to the time period 6.

(U) The high main force loadings have subsided. However, in 5 out of 8 provinces with a dual main force/hybrid loading, the main force loading remains dominant. The hybrid cluster in this time period, however, is again characterized by the heaviest casualties and combat strengths. Combined with this characteristic of hybrid war are highest averages for local war variables such as friendly small operations and VC local strength.

(U) The guerrilla war cluster, on the other hand, is demonstrating its greatest regularity and highest level of RF/PF participation in time period 8, as it also will in time period 9. It exhibits the highest means for the following five variables: VC percent enemy combat strength (this variable has prevailed in the guerrilla war cluster in all time periods except the first); the percent friendly KIA on RF/PF operations; the percent small operations by RF/PF; the RF/PF strengths; and the percent total deaths by the RF/PF. The inclusion of U.S. data in this study has served overall to reduce the strengths of the guerrilla war cluster. However, it has also portrayed a more realistic representation of the war's movements. As indicated by the COSVN resolution 9, it was not really until the latter half of 1969 that the enemy forces determined to effect implementation of increased small unit and guerrilla activity. The U.S. Vietnamization effort certainly coincides with and precedes the COSVN decision; therefore, the increasingly structured guerrilla war pattern is intelligible.

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(U) Chart 27 presents the means for activities, strength and results data applicable to each war type in this time period:

(C) Chart 27.

Monthly Variable Means in Each War Category - Time Period 8

Variables	Main Force	Hybrid	Guerrilla	Other	Countrywide
	Mean	Mean	Mean	Mean	Mean
1 Friendly Deaths-Friendly Initiated Actions	17	30	24	6	12
2 Total Friendly Deaths	55	114	81	20	45
3 Total War Deaths	251	390	157	56	147
4 Enemy Initiated Incidents	65	110	86	28	52
5 Enemy Personnel Strength	4212	5215	2300	1059	2327
6 Friendly Personnel Strength	15954	19115	15284	8021	11654
7 Total VCI Strength	1554	3085	2029	680	1344
8 % Friendly Regular KIA-Large Operations	57	27	5	8	20
9 Friendly Regular % of Total Deaths	13	7	4	7	8
10 % Enemy Attacks Targeting Military	82	80	76	63	71
11 NVA Unit Strength	1937	1711	0	160	700
12 VC % of Enemy Strength	39	50	92	60	56
13 Regular Unit % of Friendly Strength	35	28	6	15	20
14 Friendly Large Operations	20	26	10	21	20
15 Regular Unit % KIA-Small Operations	5	10	5	5	8
16 % Friendly Deaths-RF/PF Operations	27	51	84	57	52
17 Small Unit Operations with Contact	18	55	39	15	24
18 RF/PF % of Small Unit Operations	25	36	47	33	31
19 VC Local Unit Strength	1719	2589	1935	641	1218
20 RF/PF Strength	9746	13706	14221	6673	9809
21 % Enemy Incidents Against Civilians	23	23	11	16	29
22 RF/PF % Total Deaths	7	12	28	16	14

Provinces leading
strongest in the
major war types.

Quang Tri
Thua Thien
Quang Tin
Quang Ngai
Kontum
Pleiku
Darlac
Tay Ninh
Chau Doc

Quang Nam
Binh Dinh
Dinh Tuong
Kien Giang
An Xuyen

Kien Hoa
Vinh Binh
Vinh Long
Ba Xuyen

(U) The number of provinces leading in the guerrilla war pattern has actually decreased somewhat in period 8. However, in view of the increased criteria of the guerrilla war structure, it is not surprising that some of the provinces would be unable to fall within the less flexible boundaries of the cluster.

(U) Sa Dec is one of the prime examples of this occurrence, having transformed from a strong guerrilla war province into an "other" province. The following chart assesses the changes that occurred:

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(C) Chart 28.

	<u>Sa Dec</u> <u>Monthly Averages</u>		<u>Guerrilla War</u> <u>Province Averages</u>	
	<u>Time</u> <u>Period 7</u>	<u>Time</u> <u>Period 8</u>	<u>Time</u> <u>Period 7</u>	<u>Time</u> <u>Period 8</u>
Enemy Personnel Strength	626	448	2311	2300
Total VCI Strength	420	50	2198	2029
Enemy Incidents Against the Military	63%	71%	78%	76%
VC % Enemy Combat Strength	50%	50%	74%	92%
% Friendly KIA on RF/PF Operations	25%	36%	32%	84%
Friendly Small Operations	0	6	12	39
% Operations by Territorial Forces	0	27%	9%	47%
VC Local Unit Strength	558	388	1681	1935
% Deaths - Territorial Forces	17%	13%	17%	28%

Several of the small unit indicators have declined in Sa Dec: VCI strength, VC local unit strength, percent territorial force deaths. Nonetheless, several also increased: enemy incidents, percent KIA on RF/PF operations, small operations, plus the percent operations by territorial forces.

(U) The list of guerrilla war province averages are, of course, different but on the other hand, have to be viewed in the perspective of their own changes from time period 7 to 8. Sa Dec, although now an "other" province, certainly hasn't fallen into quiescence, but it no longer has enough characteristics of the guerrilla war pattern to fit this cluster. This example is very indicative of the necessity to further explore the maverick "others". Sa Dec is certainly not alone in its "other" status. Large portions of MR's II and III have remained in this category throughout the entire timeframe of this study. For comparison, Chart 29 measures the data for "other" provinces up against the war type variable averages. The activities, as well as troop strengths and results data for the "other" province category remains lowest for most indicators. The exceptions within this time period were the following:

- The other provinces retain the highest percentage of enemy incidents against civilians as found throughout the entire study.

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- . The VC constitute a majority of the enemy combat strength in the "other" provinces, second only to the guerrilla war cluster.
- . The percentage of small operations conducted by RF/PF units in the "other" provinces is comparable to any of the three war types studied.
- . The percentage of deaths suffered by RF/PF units is higher than both the main force and hybrid provinces, and second only to the guerrilla war cluster.
- . Despite the similarity to the local force activity of the guerrilla cluster, the "other" provinces total a percentage of regular force strength (15%) higher than the guerrilla cluster (6%).

Therefore, the "others" constitute areas of appreciable war distinctiveness. But though the indicators of war, particularly local war is substantial, the overall strengths and results data do not measure up in most instances to that found in the major war categories.

(C) Chart 29.

Time Period 8

	<u>Other Province Averages</u>	<u>Main Force Province Averages</u>	<u>Hybrid Province Averages</u>	<u>Guerrilla Province Averages</u>
Total War Deaths	56	251	390	157
Total Friendly KIA	20	55	114	81
Friendly Combat Strength	8021	15954	19115	15284
Enemy Combat Strength	1059	4212	5215	2300
Total Enemy Incidents	28	65	110	86
VC % of Enemy Strength	60	39	50	92
Regular % Friendly Strength	15	35	28	6
% Enemy Incidents Targeting Civilians	36	23	23	11
% Total Deaths - RF/PF	16	7	12	28
% Small Operations by RF/PF	33	25	36	47

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Spring/Summer 1971 (Time Period 9) April-September 1971

(U) This time period is the last for which data was available for the province profile analysis. The most interesting characteristic of period 9 is its extreme similarity to its predecessor, particularly with regards to the placement of the loadings.

(U) The only major anomaly in this time period is An Xuyen's changeover from a .12 hybrid loading in time period 8 to a .18 main force loading in time period 9. Chart 30 shows the changes which have occurred within An Xuyen to case this shift:

(C) Chart 30.

An Xuyen Monthly Averages

	<u>Time Period 8</u>	<u>Time Period 9</u>
Enemy Incidents Total	64	38
% Enemy Incidents Against the Military	79%	66%
% VC Enemy Strength	44%	22%
NVA Combat Strength	630	664
% Friendly KIA on Regular Larger Operations	(10%)	(40%)
% Friendly KIA on Regular Small Operations	0%	5%
& Friendly KIA on RF/PF Operations	78%	37%
Friendly Small Operations	20	15
% Small Operations by Territorial Forces	44%	30%
VC Local Unit Strength	2081	1639
% Incidents Against Civilians	19%	20%

(U) The above list of variables are those which have shown the most significant increases or decreases between time period 8 and 9. The 30% increase in friendly KIA on regular large operations was probably one of the bigger factors in the determination of the main force loading. The percent friendly KIA on regular small operations also increased somewhat as did the NVA combat strength. More significant, however, are the rather strong declines in the

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enemy incidents variables, enemy local strength, the RF/PF operations, the percent KIA on RF/PF operations, etc. The decline in these variables accounts for the shift of An Xuyen away from its hybrid loading.

(U) The guerrilla war province cluster again includes a decreased number of provinces, however, the loadings are stronger in every case but one. In addition, friendly KIA on friendly initiated activities has averaged stronger in the guerrilla war cluster than either the main force or hybrid. This is a function more of the extreme decreases in friendly KIA throughout Vietnam than of increases within guerrilla war provinces. However, it is also a further indication of the extent to which localized activity is beginning to dominate the war and the changing perspective with which we should approach analysis to explain the processes involved in the war.

(U) Chart 31 presents the means for activities, strength and results data applicable to each war type in this time period.

(C) Chart 31.

Monthly Variable Means in Each War Category - Time Period 9

Variables	Main Force Mean	Hybrid Mean	Guerrilla Mean	Other Mean	Countrywide Mean
1 Friendly Deaths-Friendly Initiated Actions	27	29	33	7	16
2 Total Friendly Deaths	69	84	64	18	42
3 Total War Deaths	373	391	260	46	184
4 Enemy Initiated Incidents	59	102	42	26	45
5 Enemy Personnel Strength	4370	4571	2234	976	2184
6 Friendly Personnel Strength	13489	18197	15735	8289	11603
7 Total VCI Strength	1376	3085	1964	729	1335
8 % Friendly Regular KIA-Large Operations	51	56	13	11	25
9 Friendly Regular % of Total Deaths	12	6	3	7	7
10 % Enemy Attacks Targeting Military	74	71	77	67	68
11 NVA Unit Strength	2544	1632	76	161	728
12 VC % of Enemy Strength	18	35	91	68	55
13 Regular Unit % of Friendly Strength	34	25	10	16	18
14 Friendly Large Operations	18	23	12	18	17
15 Regular Unit % KIA-Small Operations	10	2	5	4	5
16 % Friendly Deaths-RF/PF Operations	25	30	58	43	49
17 Small Unit Operations with Contact	14	21	45	14	19
18 RF/PF % of Small Unit Operations	24	35	39	38	34
19 VC Local Unit Strength	1428	2183	1578	569	1080
20 RF/PF Strength	8001	13138	14167	6935	9081
21 % Enemy Incidents Against Civilians	28	39	19	33	32
22 RF/PF % Total Deaths	6	5	14	23	15

Provinces loading
strongest in the
major war types.

Quang Tri	Quang Nam	Dinh Tuong
Thua Thien	Quang Tin	Kien Hoa
Kontum	Quang Ngai	Vinh Binh
Pleiku	Binh Dinh	Vinh Long
Ninh Thuan	Kien Giang	Chuong Tien
Tay Ninh	Bac Lieu	Ba Xuyen
An Xuyen		

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The hybrid war provinces retain dominance for most indicators of the different war types. Interestingly, for the first and only time, the hybrid category averaged the highest percentage of enemy incidents targeting civilians (39%) with the "other" provinces close behind (33%). More surprising is the number of friendly KIA on friendly initiated activities, high in the guerrilla war cluster for the first time. This is yet another indicator of the ascendancy of war of a local categorization.

(U) Although the war loadings have attained a large degree of stability in placement and strength, the indicators of the different patterns of activity continue to vary from one time period to the next. The variation is due in large part to the winding down of activity and the withdrawal of U.S. forces. The extent to which the war has subsided is evident from Chart 32 which compares the war type averages to the total time period means for each cluster:

(C) Chart 32.

	Main Force Time Period 9	Main Force Average	Hybrid Time Period 9	Hybrid Average	Guerrilla Time Period 9	Guerrilla Average
Total War Deaths	373	771	391	746	260	178
Total Friendly KIA	69	131	84	150	64	69
Friendly KIA on Friendly Initiated Actions	27	70	29	83	33	36
Friendly Combat Strength	13489	14965	18397	20483	15735	11813
Enemy Combat Strength	4370	9599	5571	8277	2234	2853
Total Enemy Incidents	59	75	102	136	42	52
VC & Enemy Combat Strength	18	26	35	47	93	95
RF/PF % of Total Deaths	6	4	5	4	14	13
% Enemy Incidents Targeting Civilians	28	13	39	12	19	8

The major conclusions which can be derived from this chart are the following:

- Total war deaths are generally declining in all provinces but those in the guerrilla war structure.
- Nonetheless, friendly deaths are significantly decreasing in most provinces, thereby indicating that the enemy bears the brunt of the casualties.
- Friendly combat strength has declined somewhat in both the hybrid and main force clusters, while the guerrilla provinces are experiencing a conspicuous increase in friendly support. On the other hand, total enemy strength has declined throughout the country.

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The percentage of total deaths suffered by RF/PF units is increasing in all provinces.

These conclusions primarily offer a picture of a war on the decline, although one which has changed character over the years from a substantially regular unit battle to one being fought more predominantly at a local level. Needless to say, expectations for a gradual slide to South Vietnamese victory should not be derived from this finding. Despite steadily falling troop strength the VC-NVA have been able to hold the level of their initiative (number of incidents) essentially constant. They can be expected to re-introduce large numbers of regular forces if a shift from the protracted war strategy adopted by COSVN Resolution 9 to large unit war appears desirable or necessary. The shift from large unit domination of the war to a more local war reflects both the VC-NVA strategy change and the way in which the ARVN and RF/PF have adapted themselves to carry out the main combat role with U.S. withdrawal. The large scale escalation at the end of the next time period will require further changes by the RVNAF when their organization and deployment may have been near optimum for the protracted war threat, yet as events have shown, very weak and dispersed with respect to the large regular unit war threat that was faced.

Summary

(U) This analysis of the Vietnam War by types of war activity has displayed a demonstrable pattern of activity underlying the events occurring within the structure of the war. The inclusion of U.S. data in the factor analysis has served to clarify even further the patterns analyzed previously and has given a refined perspective of the characteristics which demarcate the events occurring over time.

(U) Referral back to Table IV-2 and observation of the placement of loadings within Military Regions indicates that the war falls in heavy proportions within MR I and MR IV. MR I is an area of strong main force battle, MR IV has steady guerrilla activity. Both regions, however, have liberal amounts of the mixed or hybrid war, MR I displaying particularly strong loadings.

(U) More important than designation of war activity location and characteristics, are the patterns which can be discerned over time. The enemy offensives notwithstanding (the disruptive effects of which were perceived in time periods 2, 3 and 7) the war has presented a very observable current of activity which

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displays a large degree of constancy and, therefore, some accompanying predictability.

(U) Table IV-5 presents a summary of the variable means in each war category over the entire nine time periods, and the provinces which were most consistently representative of them. The war category with the highest average has been underlined for each variable.

(C) TABLE IV-5

WAR TYPE VARIABLE MEANS SUMMARY

Variables	Main Force Mean	Hybrid Mean	Guerrilla Mean	Other Mean	Countrywide Mean
1 Friendly Deaths-Friendly Initiated Actions	90	83	38	14	35
2 Total Friendly Deaths	131	150	69	28	63
3 Total War Deaths	771	748	178	81	266
4 Enemy Initiated Incidents	75	136	52	27	52
5 Enemy Personnel Strength	9599	8277	2853	1396	3817
6 Friendly Personnel Strength	14965	20483	11813	8769	10662
7 Total VCI Strength	1340	4950	3450	820	1920
8 % Friendly Regular KIA-Large Operations	60	48	12	13	23
9 Friendly Regular % of Total Deaths	12	8	5	9	9
10 % Enemy Attacks Targeting Military	80	81	73	64	70
11 NVA Unit Strength	6080	2659	22	260	1302
12 VC % of Enemy Strength	26	47	95	60	58
13 Regular Unit % of Friendly Strength	48	41	14	23	28
14 Friendly Large Operations	19	27	20	10	18
15 Regular Unit % KIA-Small Operations	5	11	2	8	8
16 % Friendly Deaths-RF/PF Operations	11	14	31	14	26
17 Small Unit Operations with Contact	18	116	12	8	23
18 RF/PF % of Small Unit Operations	13	13	23	18	16
19 VC Local Unit Strength	2192	4076	2216	822	1747
20 RF/PF Strength	7049	12066	10175	4677	7090
21 % Enemy Incidents Against Civilians	13	12	8	19	15
22 RF/PF % Total Deaths	4	4	13	16	11

Provinces loading
strongest in the
major war types.

Quang Tri	Quang Nam	Kien Hoa	Phu Bon
Thua Tien	Quang Tin	Vinh Binh	Ninh Thuan
Kontum	Quang Ngai	Vinh Long	Tuyen Duc
Pleiku	Binh Dinh	Kien Giang	Lam Dong
Tay Ninh	Dinh Tuong	Phong Dinh	Binh Thuan
		Ba Xuyen	Binh Tuy
			Long Khanh
			Hau Nghia
			Bien Hoa
			Phuoc Tuy
			Go Cong
			Kien Tuong
			Sa Dec

(U) As can be observed, hybrid war has most consistently been representative of areas in which friendly strength, regular (approximately 41%) and territorial, faces threat of heavy enemy incidents and resultant casualties. Large portions of MR I and IV carry hybrid loadings but most often with concomitant main force or guerrilla loadings. Therefore, the hybrid category is not a

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separate entity itself insomuch as it constitutes a structure defining those areas in which portions of both main force and guerrilla war take place.

(U) Most variables indicative of the level of war have been shown to be declining steadily in all war types between April 1967 and September 1971. Yet despite steadily falling troop strengths, the level of enemy initiated incidents has held essentially constant. Yet as the war progressed, the analysis shows that simultaneously the form of the activity becomes increasingly predictable. An intuitive evaluation of the war would show its plot of regularity across time to parallel the plot of the numbers of highest loadings defining the three patterns.

(U) It is of major significance to note the difference between the 1968 TET offensive and the increased activity in 1970. In the former, the GVN had weak control, but it was sufficient to prevent the war from slipping into the hands of the enemy. The result was the weakening of the structure. By 1970, the increased activity followed the patterns which had been established and in fact precipitated the greatest ordering of the war to that date.

(U) An examination of the COSVN resolutions also indicates an interesting aspect of the conflict. In late 1969 and 1970, the NVA-VC were determined to resort to small unit war. This is reflected in the clustering as was pointed out in the previous section. The interesting point, however, is not that so many provinces shifted, but that so few did. By and large the main force war remained undiminished (in fact, in many cases it increased). Any changes that did occur were little more than the normal shift from one time period to another. It is worth pointing out that by 1970 the GVN was capable of withstanding an attempted strategy change and still maintain the structure which had been successful.

(U) The ability of the GVN to resist strategy changes is particularly important given the withdrawal of U.S. forces. The question may be raised as to whether U.S. withdrawal will return the initiative to the VC/NVA. The data and analysis suggest that despite VC/NVA efforts to reorder the war as the U.S. forces pull out, the GVN has been able to maintain the established patterns. The main force war is more distinct in 1970 in the usual remote areas when the VC/NVA were seeking to press small unit, guerrilla warfare on urban areas.

(U) Finally, on a very general level, the clustering analysis raises some fundamental questions about the nature of the revolutionary and counter-revolutionary efforts. It is suggested (but not proved), that the real conflict occurs not over what ground rules will be used, but whether they will be employed. Once a set of implicit rules for accepted and prohibited behavior are established

(whatever they may be), the guerrilla forces have suffered a loss. Conversely, if the counter-revolutionary forces cannot force some boundaries to the conflict, they may have no chance of winning. The reasons are that once the patterns are set, the government forces can prepare defenses and offenses against resources, it can succeed if it can only plan what it must succeed in doing. The data would indicate the plausibility of this thesis. As was noted earlier, it remains to be subjected to a formal test.

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SECTION V
CAMBODIA AND LAOS

(U) The main force, guerrilla, and hybrid war types provide a logical structure for a description of the war in South Vietnam on a province by province basis. These three war types clearly show the variations of military presence and combat both across provinces and through time. Although the use of Cambodia and Laos as supply routes and sanctuaries for the NVA and VC has made these countries an integral part of the war in South Vietnam throughout the war, the extension of ground combat into Cambodia and Laos in 1970 and 1971 calls for their addition to the description of the war provided in this report. Because at least ¹⁵ of the 22 variables used to define the profiles of South Vietnamese provinces on the three war types are not applicable to Cambodia and Laos, it was not appropriate to include the war in these countries in the analyses defining the war types. However, it is possible to examine the characteristics of the military presence and combat in Cambodia and Laos and make some comparisons with the nature of the war in South Vietnam using the 13 variables which do apply.

(U) The examination of the war in Cambodia extends from period seven through period nine of the province profile analysis (May '70 through September '71). Operation Lam Son 719 took place in the last two months of period eight (8 February through 22 March 1971). Table V-1 lists the applicable monthly averages for these periods of the war in Cambodia and Laos along with the countrywide monthly province averages for South Vietnam over periods seven through nine. A few caveats concerning these averages are needed before proceeding with any interpretation of the data. The enemy order of battle data is taken from the "G" records of the SEAPRS file. The monthly figures for Cambodia show a noticeable increase coincident with the start of allied operations in May 1970. This increase by an order of magnitude appears to reflect increased attention to the area rather than any change in VC or NVA deployment to Cambodia. Therefore, data prior to May 1970 has not been considered in describing resources and combat in Cambodia. In Laos the SEAPRS data is substantially lower than the estimated 15 to 20 thousand NVA combat strength given by most open sources as the opposition to Lam Son 719. Friendly combat strength is based on 845 men per battalion for U.S. units and the SEER data averages of roughly 500 and 550 per battalion for the ARVN units sent into Cambodia and Laos respectively.

¹⁵ The variables covering VCI, local guerrillas, and RF/PF along with their activities have no meaning for Cambodia and Laos comparable to South Vietnam.

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(C) TABLE V-1

CAMBODIA, LAOS, AND SOUTH VIETNAM SUMMARY

	<u>Cambodia</u>		<u>Laos</u>		<u>South Vietnam Ave. for Periods 7, 8 & 9</u>
	<u>Period 7</u>	<u>Period 8</u>	<u>Period 9</u>	<u>Period 8</u>	
. Total Friendly Deaths in Fr. Initiated Action	176	149	64	520	18
. Total Friendly Deaths	196	204	75	548	48
. War Deaths	1,760	1,406	809	6,780	163
. Enemy Initiated Incidents	101	64	44	24	51
. Enemy Personnel Strength (Combat)	21,192	19,351	20,485	11,732	2,467
. Friendly Personnel Strength (Combat)	13,073	14,600	10,750	13,000	11,033
. Percent Friendly Deaths on Large Unit Operations	98	87	90	100	20
. Friendly Regular Unit Percent of War Deaths	17	13	8	8	9
. Percent of Enemy Attacks Targeting Military	87	90	89	100	71
. NVA Combat Strength	14,163	12,684	13,261	10,852	800
. VC Percent of Enemy Combat Strength	43	47	47	8	55
. Regular Unit Percent of Friendly Combat Strength	100	99	100	100	17
. Total Friendly Large Unit Operations	20	21	13	4	17

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For Laos this gives an ARVN strength lower in several degrees than the 16, 20, or 30 thousand man strength variously reported for the size of ARVN forces committed to Lam Son 719. In any event direct comparison to the South Vietnam average province strength and combat data is inappropriate because in the case of Cambodia, the enemy forces are likely to have been more dispersed and in Laos more concentrated than would be encountered in any single province.

(U) This nature of the war in Cambodia and Laos can be seen by comparing the strength and deadliness figures with the South Vietnam province averages. In Cambodia friendly regular troops slightly greater than in the average South Vietnamese province were sent against enemy forces roughly eight times larger than could be found in South Vietnam. The results have been friendly deaths on friendly initiated action and total war deaths approximately seven to eight times the average in South Vietnam. It appears that the tasks of locating and engaging the enemy are very nearly equivalent for South Vietnam and Cambodia. The intensity of combat for approximately the same amount of effort (20, 21, and 13 operations per month versus 17) is governed by the number of enemy forces which are available to be found and engaged. In Laos a different pattern is disclosed. Here GVN forces higher by anywhere from 10 to 60 percent than in the average South Vietnam province went against NVA and VC forces 80 to 120 percent greater than in South Vietnam. The results reflected a high concentration of enemy forces with deadliness coming out 30 to 40 times greater than in South Vietnam. It is clear that Lam Son 719 is a special case not fitting into any pattern of the war conducted in South Vietnam. Cambodia on the other hand, has been more or less continuous since May of 1970 and shows signs of being an extension of the main force war type (less the local force war aspects).

(U) Table V-2 compares the monthly averages of Cambodia and the South Vietnam main force war provinces during period seven through nine. A third column in this table shows the ratio of average Cambodia presence and combat to the average South Vietnam main force war province. during these three periods. These averages tend to confirm the earlier supposition that the enemy combat forces in Cambodia are more dispersed than in South Vietnam. Approximately the same number of operations against four times as many VC-NVA result in about three times as many friendly and enemy dead. The still lower ratio of 1.5 for total friendly deaths also reflects the lower enemy density with fewer friendly deaths due to enemy initiated action. In the South Vietnam main force war the RF/PF account for some 63 percent of the friendly strength yet they absorb only 5 percent of the total war deaths. If the RF/PF are removed from the South Vietnam main force averages the following changes occur in Table V-2.

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TABLE V-2

(C) CAMBODIA AND MAIN FORCE WAR

<u>Variable</u>	<u>Main Force Average</u>	<u>Cambodia Average</u>	<u>Ratio</u>
. Total Friendly Deaths in Fr. Initiated Action	45	130	2.9
. Total Friendly Deaths	97	158	1.5
. War Deaths	452	1,325	2.9
. Enemy Initiated Incidents	84	70	.8
. Enemy Personnel Strength (Combat)	5,220	20,343	3.9
. Friendly Personnel Strength (Combat)	15,264	12,808	.8
. Percent Friendly Deaths on Large Unit Operations	57	92	1.5
. Friendly Regular Unit Percent of War Deaths	13	13 13	1.0
. Percent of Enemy Attacks Targeting Military	81	89	.9
. NVA Combat Strength	3,049	13,369	4.4
. VC Percent of Enemy Combat Strength	27	46	1.7
. Regular Unit Percent of Friendly Combat Strength	37	100	2.7
. Total Friendly Large Unit Operations	19	18	1.0
. Friendly Territorial Force Percent of War Deaths	5	0	-

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<u>Variable</u>	<u>Main Force Average</u>	<u>Cambodia Average</u>	<u>Ratio</u>
. Friendly Personnel Strength	5,700	12,808	2.3
. Regular Unit Percent of Friendly Combat	100	100	1.0

These changes make Cambodia appear to be the equivalent of roughly three main force war provinces in all respects except the number of enemy incidents, which probably could also be brought into line by removal of attacks against RF/PF units. Note that total war deaths is essentially US-ARVN plus VC-NVA with US-ARVN accounting for 13 percent in both South Vietnam and Laos.

(U) In summary, it is concluded that Laos and Lam Son 719 represents a special case which should not be included in any efforts to develop explanatory models. Cambodia, however, appears to have had the effect of adding three main force war provinces to South Vietnam. Models which explain the process at work in the main force war type can probably also be applied to Cambodia. It should also be possible to project trends for the activity in each war type, including the three main force provinces for Cambodia, as a guide to force structure planning and estimating future levels of military activity.

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APPENDIX A

FACTOR ANALYSIS

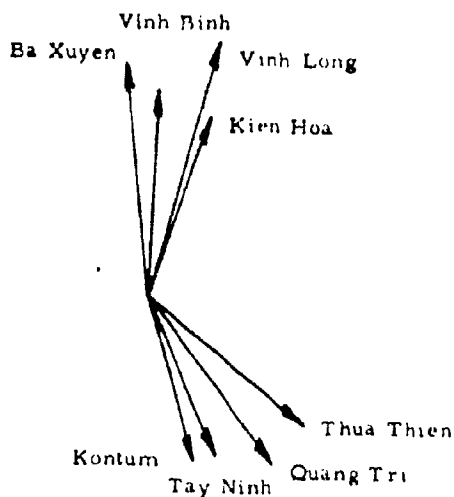
APPENDIX A

FACTOR ANALYSIS

(U) The correlations presented on pg III-5 of the body of the paper can also be interpreted spacially. The greater the correlation, the closer the provinces are to each other. Figure A-1 below indicates a simplified¹ representation of the correlations.

(U) FIGURE A-1

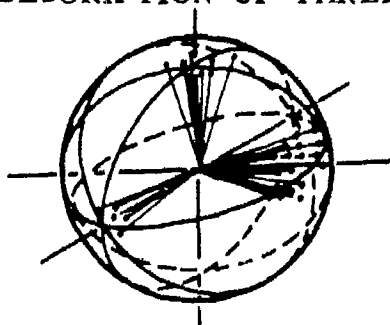
SPACIAL DESCRIPTION OF CORRELATION MATRIX



if we were to use more provinces and a more complex set of interactions, we might be unable to plot the provinces in two dimensions. A hypothetically more complex spatial representation of the correlations between province profiles is shown in Figure A-2. This representation shows 28 hypothetical provinces which tend to form three distinct clusters on independent dimensions.

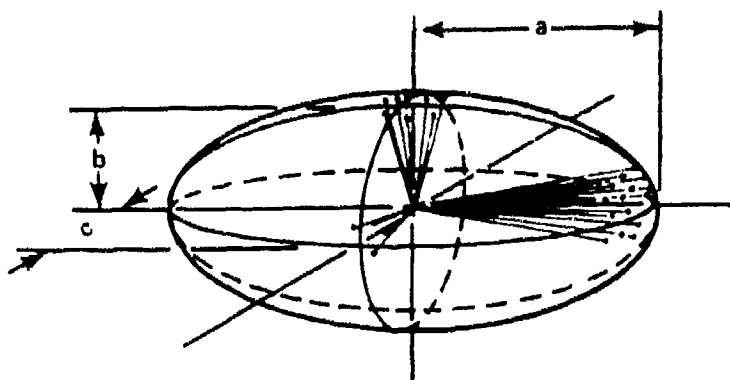
¹(U) This is a simplification because it would require a ten-dimensional space to plot them exactly. The correlations are equal to the cosine of the angle between provinces. A quick test with a ruler protractor will show that each province adds a new dimension.

(U) FIGURE A-2
SPHERICAL DESCRIPTION OF THREE CLUSTERS



As indicated by the figure, the shape which will enclose all possible provinces is a sphere. However, in this hypothetical example, 16 provinces fall primarily along one axis, 8 along the second, and 4 along the third. In general, there will be as many axes as there are provinces. However, because the provinces are not distributed evenly, the axes will be of different lengths. In such a case, it may be more useful to visualize the relationships between provinces as being enclosed in a multi-dimensional (28 in the example) cigar or ellipsoid such as that illustrated in Figure A-3 below. The length of the axes a , b , c ... are determined by the extent to which provinces are located

(U) FIGURE A-3
ELLIPSOIDAL DESCRIPTION OF THREE CLUSTERS



in any specific direction (a , b , c ... n). The longer the axis, the greater power it has in measuring variations between provinces.

(U) If each province were completely different (zero correlation) from each other, each axis would represent one province and the cigar would be completely spherical. However, this is not the case and we have several provinces protruding out in a few directions. Axis " a " is direction along which most of the provinces fall. Its length is proportional to the number

of provinces extending in that direction. Axis "b" is that which has the second most provinces, axis "c" has the third most, etc. The statistical technique known as factor analysis, identifies the axes and their relative lengths.

(U) Remembering that the number of "important" axes are a function of the data, let us now return to our eight province example again. In this case, we find that axes "a" and "b" account for the major proportion of the variation and the rest can be discarded. They are described below in Table A-1. The loadings are correlations and measure the extent to which a province is related to a given cluster.²

(U) TABLE A-1

ORTHOGONAL ROTATION

<u>Province Name</u>	<u>"Y" Axis</u>	<u>"X" Axis</u>
Quang Tri	-.59	.46
Thua Thien	-.47	.57
Kontum	-.58	.18
Tay Ninh	-.55	.23
Ba Xuyen	.84	-.08
Kien Hoa	.66	.20
Vinh Binh	.76	.02
Vinh Long	.91	.25

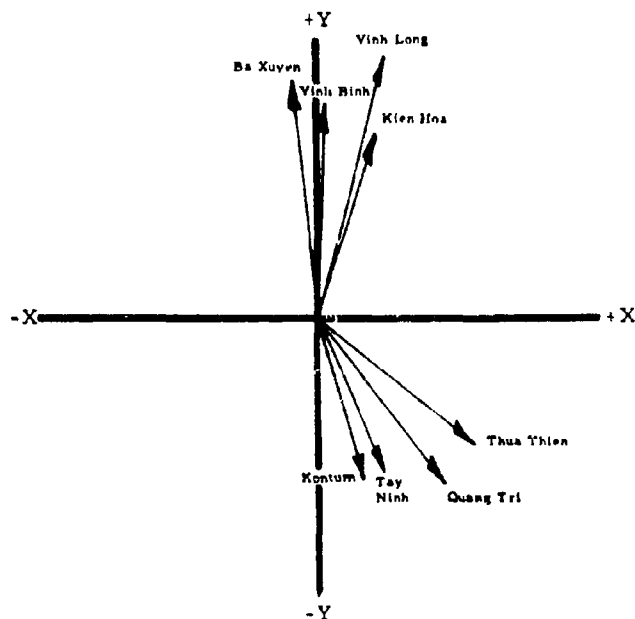
(U) If a province has a partial loading on two clusters (factors), this would indicate that it has partial similarities to each.³ We can see that

² (U) As with all correlations, they range from -1.0 to +1.0. A negative loading means that the province would be located in the opposite direction from the original, and therefore, should be considered as part of another cluster of provinces.

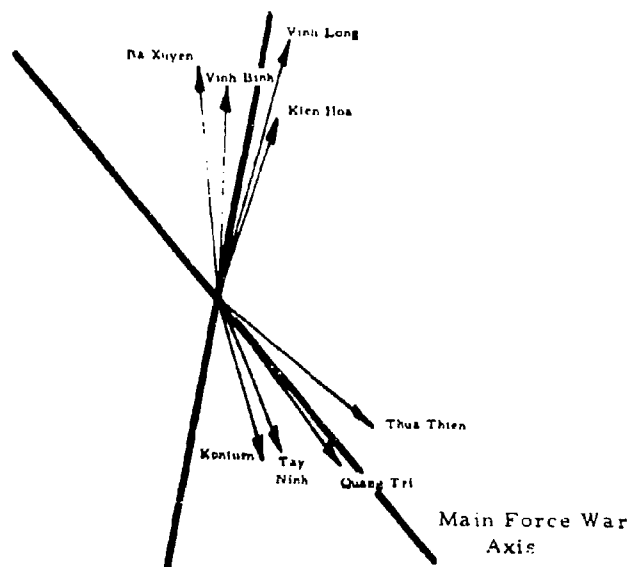
³ (U) The substantive meaning of provinces with different types of war is explained in the text.

the clustering shown in Table A-1 does not easily fit substantively with the OASD(SA) clusters. An examination of Figures A-4 and A-5 below indicate

(U) FIGURE A-4
ORTHOGONAL ROTATION



(U) FIGURE A-5
OBLIQUE ROTATION
Guerrilla War Axis



the difficulty. Figure A-4 is a graphical representation of the two space distribution described in Table A-1. We can see two clusters which are not perpendicular to each other. Although the two axes accurately measure the relationship of the provinces to each other, the positioning of the axes do not lend themselves to easy interpretation. Thus, to aid interpretation, we can shift the perpendicular axes to oblique axes similar to the OASD(SA) results. By shifting the axes, we do not mathematically change the structure of the provinces relative to each other. We simply enhance the ease of substantive interpretation. The results are shown below in Table A-2 and Figure A-5. Figure A-5 demonstrates the clusters with the axes adjusted

(U) TABLE A-2

OBLIQUE SOLUTION COMPARED
TO OASD(SA) CLUSTERS

<u>Province Name</u>	<u>Guerrilla Cluster</u>		<u>Main Force Cluster</u>	
	OASD(SA)	Bendix	OASD(SA)	Bendix
Quang Tri		-.24	MF	.39
Thua Thien		-.19	MF	.39
Kontum		-.36	MF	.37
Tay Ninh		-.27	MF	.32
Ba Xuyen	Guerrilla	.30		-.18
Kien Hoa	Guerrilla	.28		-.26
Vinh Binh	Guerrilla	.41		-.25
Vinh Long	Guerrilla	.38		-.32

to aid interpretation. Since the axes (which define the clusters) are positively located at the center of the actual group of provinces, the results give the appearance of being much more meaningful. That is, they more closely represent our impressions of reality even though, strictly speaking, there is no net difference between it and the perpendicular (orthogonal) solution. They enable us to conclude that all provinces which are strongly positive on the main force axis are main force provinces. Those which are positively located on the guerrilla war axis are guerrilla war provinces.

(U) We can see that there is a strong relationship between the two sets of results (OASD(SA) and Bendix). Although we do not show all provinces as being equally strongly related to the two clusters, the two approaches result in the same gross classification.

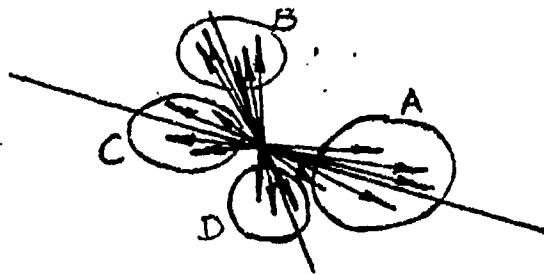
(U) In an analogous manner, using the entire set of provinces for all four years, we can compute the seven complete correlation matrices (one for each six month time period). These will be included in subsequent documents.

(U) We factor-analyzed the seven matrices first obtaining the orthogonal orthogonal (perpendicular) results. These results, although difficult to interpret, will be used in subsequent analysis because of the desirable mathematical properties of orthogonality.^{4, 5}

(U) The oblique solution was also obtained. Since this describes a four-dimensional space, we cannot graph it as we could the two-dimensional example. Nonetheless, the concept is identical and one can attempt to visualize these provinces with high loadings on a cluster to be close to the center of the axis and that those with low loadings are distant from it.

⁴(U) It is important to remember that this solution describes the same configuration of provinces as does the more easily understood oblique solution.

⁵(U) This larger factor analysis presents a difficulty in interpretation which must be explained. It will be noticed that there are some negative loadings (correlations with the clusters). The meaning of these loadings can be best shown graphically in Figure i below. Clusters "A" and "B" are represented



by position loadings (correlation). Clusters "C" and "D" would have negative loadings.

(U) These clusters are clear opposites of their positive counterparts. They must, therefore, be considered as distinct from the positively loading provinces.

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